

UPS Solutions & Services

EATON

Powering Business Worldwide

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Aerospace



Truck



Powering business worldwide

Discover Eaton – a leader in the power management field

Since 1911, when our company began trading as a small truck parts supplier, Eaton® Corporation has come a long way. Today, as a diversified power management company, Eaton has sales of \$13.7 billion USD (FY 2010), employs 70,000 people and has customers in more than 150 countries. Everyday, we help companies across the world to manage power, and do more, while consuming less energy.

Eaton's innovative products, solutions and technologies are designed to help customers to manage power and conserve resources while working more productively, safely and sustainably. Our integrated and diversified business strategy ensures that we remain at the forefront of our industry, decade after decade.

Electrical

A global leader in electrical control, power distribution, uninterruptible power supply and industrial automation products and services. Our products provide customer-driven PowerChain Management® solutions to serve the power system needs of the industrial, institutional, government, utility, commercial, residential, IT, mission critical and OEM markets worldwide.

Aerospace

A leading global supplier to commercial and military aviation and aerospace industries. An extensive technology portfolio includes hydraulic systems, fuel systems, motion control systems, propulsion sub-systems, cockpit controls and displays and fluid health monitoring systems. Our products improve fuel economy, aircraft performance, reliability and safety.

Truck

A leader in the design, manufacture and marketing of complete line of drivetrain systems and components for medium- and heavy-duty commercial vehicles. Under the "Roadranger" brand, Eaton also markets lubricants, safety products and service tools. Eaton's hybrid power systems have earned the company recognition as a global leader in alternative power for commercial vehicles.

Automotive

A supplier of critical components that reduce emissions and fuel consumption and improve stability and performance of cars, light trucks and commercial vehicles. Principal products include engine valves and valve train components, transmission and engine controls, supercharger, locking and limited slip differentials, cylinder heads, fluid conveyance components, body mouldings and spoilers.

Hydraulics

A worldwide leader in reliable, high-efficiency hydraulic systems and components for use in mobile and industrial applications. Markets include agriculture, construction, mining, forestry, utility, material handling, earth moving, truck and bus, machine tools, moulding, primary metals, automotive, power generation, port machinery and entertainment.



Electrical



Automotive



Hydraulics

... more sustainably

Sustainability – smaller footprint in the world

The principle of sustainability means meeting the current needs of our own society without compromising the needs or options of future generations. It is a principle, which forms the very core of our design and production philosophy and guides all our activities across the world. Eaton commitment to reducing it's own ecological footprint covers a wide range of green technologies, products and services that help customers utilise electrical power more efficiently, while improving environmental performance.

Green Leaf certification

Eaton has developed a rigorous internal environmental certification process called the Eaton Green Leaf based on the guidelines of major international standards bodies, such as the European Union, the US Federal Trade Commission and the International Organisation for Standardisation (ISO). Although all of Eaton's products and solutions are designed to meet or exceed government standards for protecting the environment, products and solutions with the Green Leaf designation go well beyond these standards to provide exceptional environmental benefit.



An Eaton Green Solution

When you see this symbol, you know the solution represents an Eaton benchmark for environmental performance.

Learn more about Eaton Green Solutions at www.eaton.com/greensolutions



Powering electrical systems worldwide

Eaton is a market-leader in electrical power distribution, power quality systems, industrial automation and control products and services. Our technology-driven solutions serve the mission-critical needs of the industrial, utility, commercial, residential and information technology markets.

Buildings

Residential, Healthcare, Education, Commercial offices, Retail, Public sector, Airports

- Electrical distribution solutions for safe and efficient power delivery
- Power quality systems for uptime and reliability
- Power metering and monitoring to add intelligence and save costs
- Industrial control products for HVAC applications

Information Technology

Data centers, Telecommunication, Networks, Computer rooms

- World's most efficient line of UPSs to reduce footprint and save energy
- Reliable power systems with inherent redundancy to improve availability
- Power metering and monitoring to diagnose problems and lower costs
- Local service and support for quick response



Industrial & Machinery

Manufacturing, Agriculture, Construction, Mining and Metals, Petrochemicals, Pharmaceuticals, Pulp and Paper, Material handling

- Electrical distribution equipment to deliver power throughout the enterprise
- Control & automation and power quality equipment for process control
- Power metering and monitoring to manage energy costs and uptime
- Power and motion control products to optimize productivity, reliability, safety and operator comfort

Energy & Utilities

Renewable energy: Solar, Wind, Hydropower-
Traditional energy: Oil, Gas,
Smart grid, Water and waste water

- Electrical balance of system and turnkey services for residential, utility and commercial solar installations
- Power distribution equipment, control components and system installations services
- Network power grid technology for intelligent data, lower costs and crew/public safety

Power Quality Business

Eaton's power quality business has more than 45 years of experience in designing and producing innovative power quality products. The result is an expansive portfolio of products, which help to protect our customer's business processes, critical applications and systems from all power problems and failures reliably and efficiently.



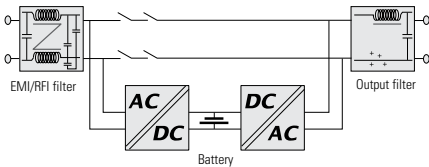
Eaton product and service range

- AC UPS from 550 VA up to 4400 kVA
- DC systems of all sizes
- A broad portfolio of rack-based power distribution units (ePDU®)
- Software and connectivity products for power management and remote control
- Technical support and maintenance
- Complete power quality solutions

Eaton products are manufactured in Finland, USA, China, Taiwan, India, Brazil, UK and New Zealand.

Power protection for different needs

There are nine common types of power problems, including power failure, power sag, power surge, undervoltage, overvoltage, switching transient, line noise, frequency variation and harmonic distortion. Based on three UPS topologies, Eaton offers a wide range of UPS solutions to provide an appropriate level of power protection against different power problems and failures.



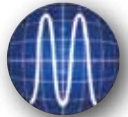
Passive standby topology (off-line) is the most frequently used UPS topology for protecting PCs against power failure, power sag and power surge. In normal mode, the UPS supplies power to the application directly from the mains, filtered but without active conversion. The battery is charged from the mains. In the event of a power cut or fluctuation, the UPS delivers stable power from the battery. The advantages of this topology are low cost and adequacy for office environments. Passive standby topology is not suitable if the power supply is of low quality (industrial sites) or subject to frequent disruptions.



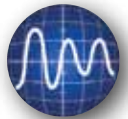
1. POWER FAILURE



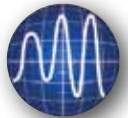
2. POWER SAG



3. POWER SURGE



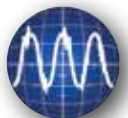
4. UNDERVOLTAGE



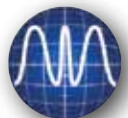
5. OVERVOLTAGE



6. SWITCHING TRANSIENT



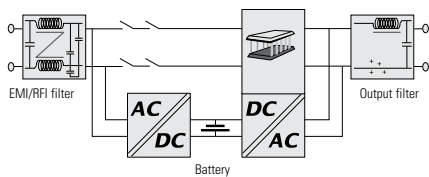
7. LINE NOISE



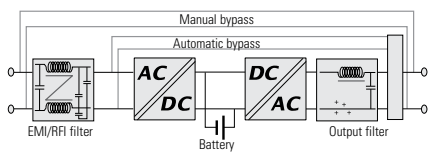
8. FREQUENCY VARIATION



9. HARMONIC DISTORTION



Line interactive topology is used for protecting enterprise networks and IT applications against power failure, power sag, power surge, undervoltage and overvoltage. In normal mode, the device is controlled by a microprocessor that monitors the quality of the supply and reacts to fluctuations. A voltage compensation circuit is enabled to boost or reduce the supply voltage to compensate for the fluctuations. The main advantage of this topology is that it enables compensation of under and overvoltage without using the batteries.



Double conversion topology (on-line) is a basis for UPSs designed for continuous power protection of critical equipment against all nine power problems: power failure, power sag, power surge, undervoltage, overvoltage, switching transient, line noise, frequency variation and harmonic distortion. It ensures a consistent quality of power supply regardless of disturbances in the incoming mains. The output voltage is entirely regenerated by a sequence of AC to DC conversion followed by DC to AC conversion in order to create power supply without any electrical interference. Double conversion UPSs can be used with any type of equipment as there are no transients when changing over to battery power.

Energy Saver System



Applications

Energy Saver System is available for all Eaton 9390 and 9395 UPSs including:

- stand-alone single UPSs
- parallel systems

All existing installations can be upgraded with the ESS capability.

Energy Advantage Architecture (EAA)

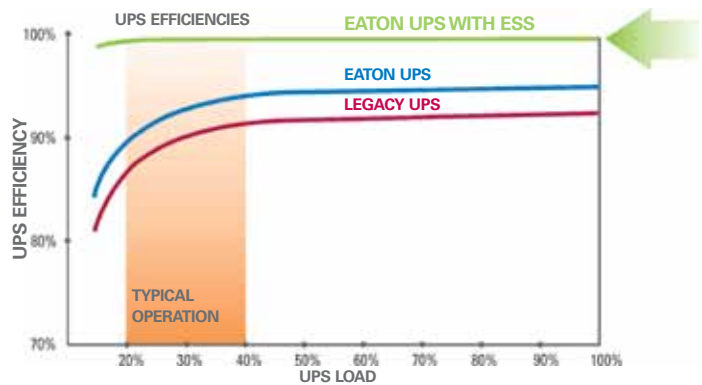
The rising demand for highly available, reliable and efficient power is a continuous challenge for data centre operators. Higher energy efficiency helps to address increasing environmental, regulatory and economic pressures.

Eaton has developed innovative and proprietary technologies that improve system efficiency without compromising on reliability under the Energy Advantage Architecture (EAA) umbrella.

Energy Saver System (ESS) is one of these technologies.

Maximised energy efficiency

With **85 percent reduction in UPS energy losses**, ESS technology dramatically reduces energy consumption, environmental impact and power costs without compromising load protection. With these outstanding energy savings, it is possible to recover the entire cost of the UPS over a three to five year period.



ESS enables market-leading 99 percent efficiency across the entire operating range. Compared to conventional 'eco-mode' capabilities available with legacy products, ESS offers the best possible efficiency and the fastest transition times to double conversion when power disturbances occur.

Energy Saver System

No compromise on reliability

In ESS mode the UPS safely provides mains current directly to the load when the input is within the acceptable limits by its voltage and frequency. If input power exceeds the predefined limits by frequency or voltage, the UPS switches to double conversion. If input power is outside the tolerances of the system, the UPS draws power from available battery modules.

Superior detection and control algorithms continuously monitor incoming power quality and allow the UPS to engage power converters in less than two milliseconds when the utility source exceeds predefined limits by its voltage or frequency, thus always providing secured power to the critical load while maximising efficiency. If the UPS detects a fault condition while operating in ESS, it is able to detect and determine whether the fault is caused by the load or if it is upstream from the UPS. A fault at the bypass source results in immediate switchover to the inverter; a fault in the load keeps the UPS in Energy Saver System (ESS).

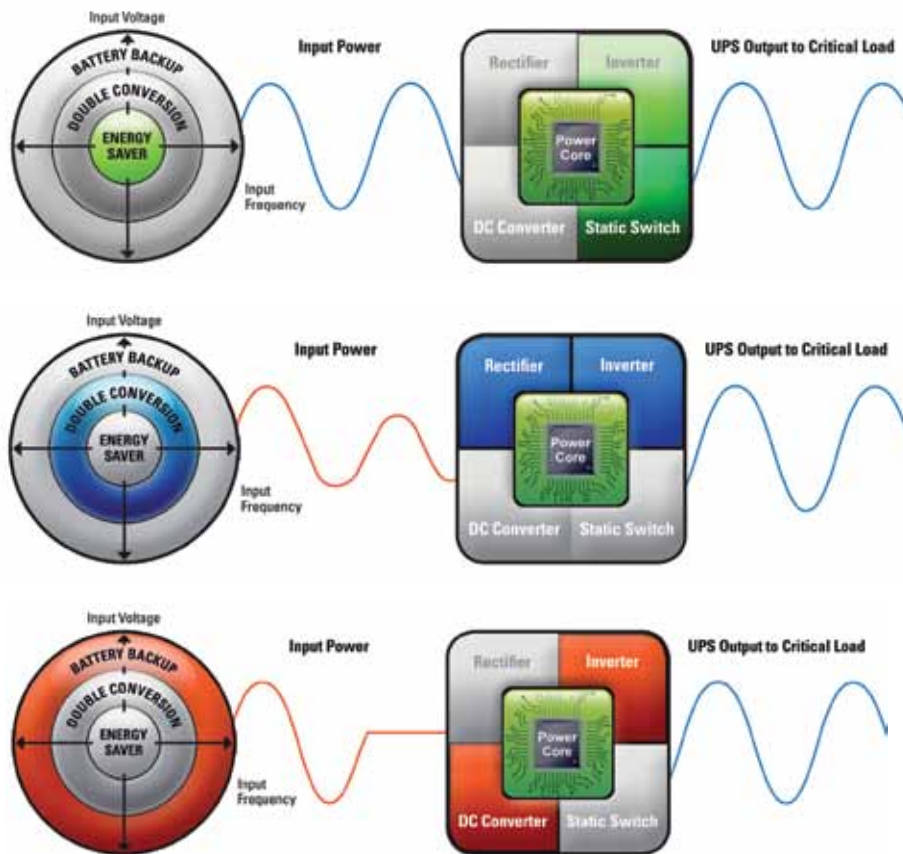
Proven Eaton technology ensures reliability and continuous load availability without compromising the protection of the supported equipment.

Extensive configurability

Eaton UPS with Energy Saver System features three configurable modes of operation:

- Standard double conversion mode: the UPS operates as normal, supplying power through the power converters.
- Energy Saver System: the power converters are in ready state and the static bypass switch allows the UPS to supply mains power directly.
- High Alert mode: the UPS automatically transfers from ESS to double conversion mode and in case of multiple recurring utility line disturbances it stays there for a predefined time (default one hour) until it is safe to return to ESS.

The UPS seamlessly executes transitions through different operating modes as needed. This is only possible with transformer-free topologies.



Active components engaged during Energy Saver System mode

Availability

ESS is available for all 9390 and 9395 UPSs. Parallel UPS systems also support operation in ESS mode. Existing installations can be upgraded with ESS capability.

Variable Module Management System



Energy Advantage Architecture (EAA)

The rising demand for highly available, reliable and efficient power is a continuous challenge for data centre operators. Higher energy efficiency helps to address increasing environmental, regulatory and economic pressures.

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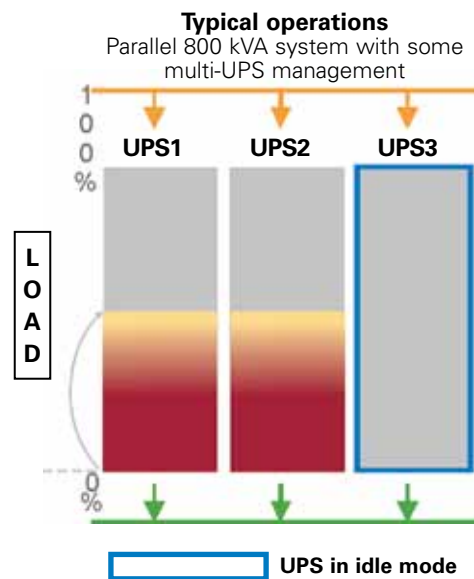
Typical field operations are usually within low load range, but UPSs do not operate at optimal efficiency when used for lighter loads.

In some multi-UPS parallel systems used with lighter loads, the system maximises the load percentage of the UPSs by putting the UPSs that are not needed to power the load into idle mode. This results in partial energy savings and is limited to multi-UPS systems, with no efficiency improvements for single-UPS systems.

Applications

Typical applications where VMMS is particularly efficient include:

- UPSs in redundant N+1 and 2N systems
 - Lightly loaded: UPSs in these systems typically operate at low loads, < 45% load level
- Data centres, especially when the UPS system feeds dual-corded servers
- Any applications where load is not constant



Variable Module Management System (VMMS) technology maximises efficiencies at lighter loads without compromising reliability.

Variable Module Management System (VMMS)

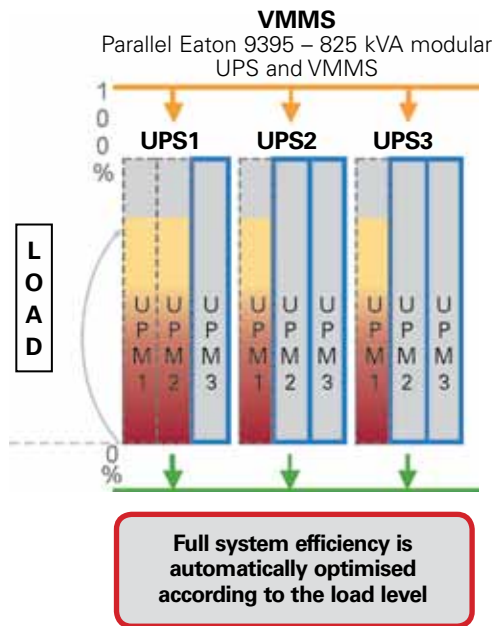
Maximised energy efficiency

VMMS optimally employs uninterruptible power modules (UPMs) in the UPS to achieve higher efficiencies in double conversion mode in order to maximise the percentage load level of the remaining active UPMs by switching UPMs that are not needed to ready state*.

This is calculated according to the UPMs' VMMS load threshold – 80% by default – and the system configuration (redundancy requirements). This results in maximised energy savings.

VMMS is only possible thanks to Eaton 9395 UPS modularity. VMMS can also be applied in multimodule single-UPS systems.

*In "ready state," the UPM rectifies the DC-link, generates logic level PWM (Pulse Width Modulation) signals and filters EMI and lightning spikes.



No compromise on reliability

When a disturbance or load increase occurs on a critical bus, all the UPMs in ready state are able to react quickly, immediately switching back to double conversion mode connecting the existing PWM signals to the IGBT gates.

In VMMS, all UPMs will switch to double conversion if:

- the output voltage fluctuates by more than 3% for any reason
- any UPM reaches its current limit or discharges its battery
- battery recharge is necessary.

Once the above conditions are resolved, the system switches back to VMMS, after a customer-preset time delay (1 to 60 hours): once the load stabilises, Eaton proprietary design and algorithms allow the system to determine which UPMs to switch back to ready state to maximise efficiency according to the new operating conditions.

Extensive configurability

Customers can decide how to configure their system, establishing the number of redundant UPMs and the max percentage load level per UPM allowed in VMMS setting other UPM's in ready state.

VMMS can be used in all multi-module (multiple-UPM) 9395 systems:

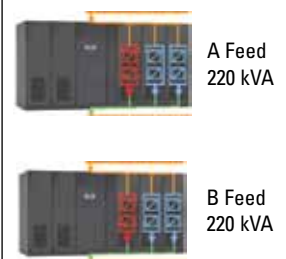
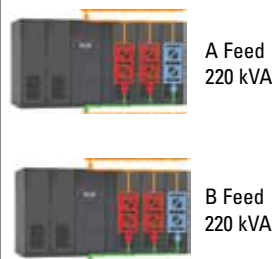
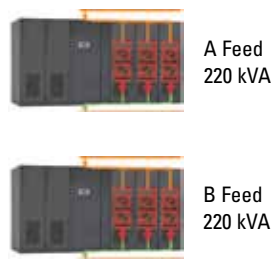
- Single 9395 units from 550kVA to 1100kVA
- Distributed parallel systems (Xx550, Xx825, Xx1100)
- SBM system

Existing installations can also be upgraded with VMMS capability:

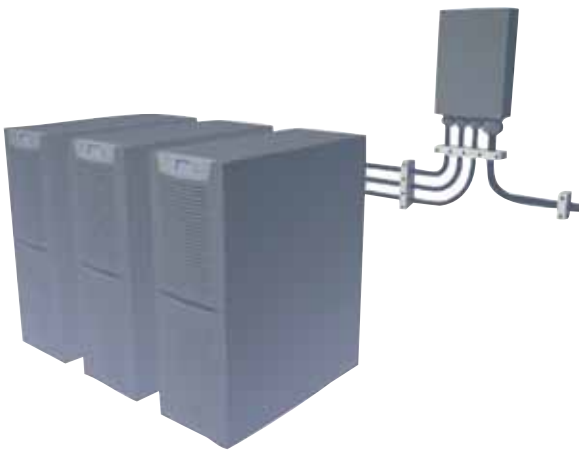
- VMMS maintains redundancy and achieves higher efficiency by intelligently controlling the load levels of UPMs
- Number of redundant UPMs can be selected (N+0, N+1, N+2, N+X)
- UPMs in ready state can be used as redundant units (N+0)

Data centre with dual-corded servers, 825 (3x275) kVA UPS on A and B side – 440 kVA load

| UPS configuration | Without VMMS | VMMS on N + 1 redundancy | VMMS on N + 0 redundancy |
|--------------------------------|--|---|--------------------------|
| Efficiency @ 440 kVA load | 91.2% | 92.8% | 94.3% |
| UPS energy savings | Used as reference for savings calculation | 56 MWh / year | 108 MWh / year |
| Additional benefits & comments | ✓ Industry-leading UPS efficiency in double conversion | ✓ Additional energy savings from reduced cooling in VMMS (typically 30-40% on top of UPS energy savings) ✓ UPMs in VMMS ready state available for redundancy | |



Powerware Hot Sync Technology



Paralleling UPS technology

The number one function of a UPS is to supply continuous conditioned, reliable electricity to a critical load. In case of a single unit, reliability can be increased by modular design, where redundant internal modules can take over each others' tasks, if one of the modules fails.

To further increase reliability, a true parallel configuration can be employed, where two or more units share the load. A failed unit is isolated while the remaining ones continue to support the critical load. Competitive UPS products on the market utilise centralised or distributed load-sharing technology with the master-slave principle, which introduces a risk of single point failure. The absolute reliability of a UPS system can be achieved with patented Powerware Hot Sync® parallel load-sharing technology. (Figure 1)

Hot Sync technology is designed for parallel redundant N+1 systems to satisfy 24/7 applications. It can also be used in parallel capacity systems to benefit from scalability for customers' ever-increasing load demands.

Hot Sync erases single point of failure, with an ability to synchronise and support critical loads independently of other UPS modules in the system. UPS modules can share loads without any communication wiring to the outside world.

User benefits

- Available for both single- and three -phase products to meet any mission-critical need up to 4.4 MVA (400V) systems
- Easy and modular parallel UPS system upgrade with additional capacity or redundancy
- Erases single point of failure

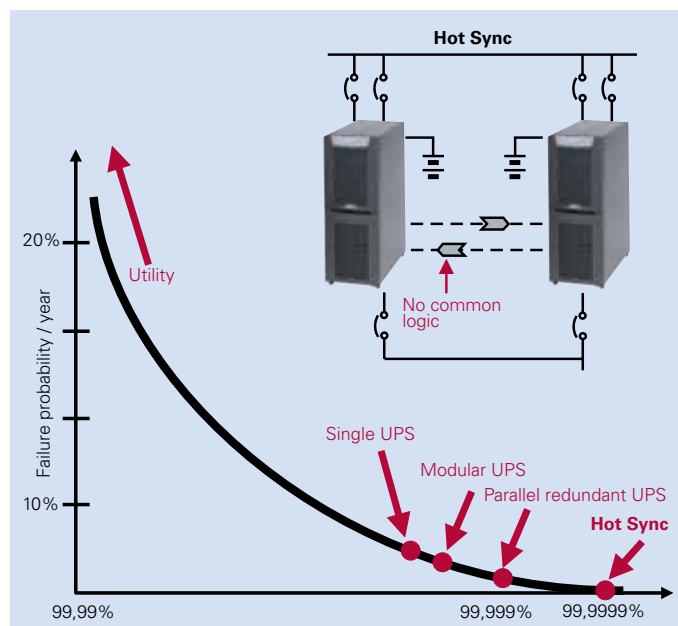


Figure 1. Power availability with various power supply configurations.

Powerware Hot Sync Technology

The secret here is a patented built-in digital signal processor (DSP) algorithm, running continuously in each unit. It drives the UPS outputs toward synchronisation and takes care of load sharing. If there is a common bypass available, it is used as valid synchronisation source for output. In the absence of a common bypass, the processor makes subtle adjustments to the inverter frequency on the basis of output power level measurement in order to find a common frequency and load balance among the units. There exists, as shown in Figure 2, a relationship between the power imbalance and the voltage phase difference.

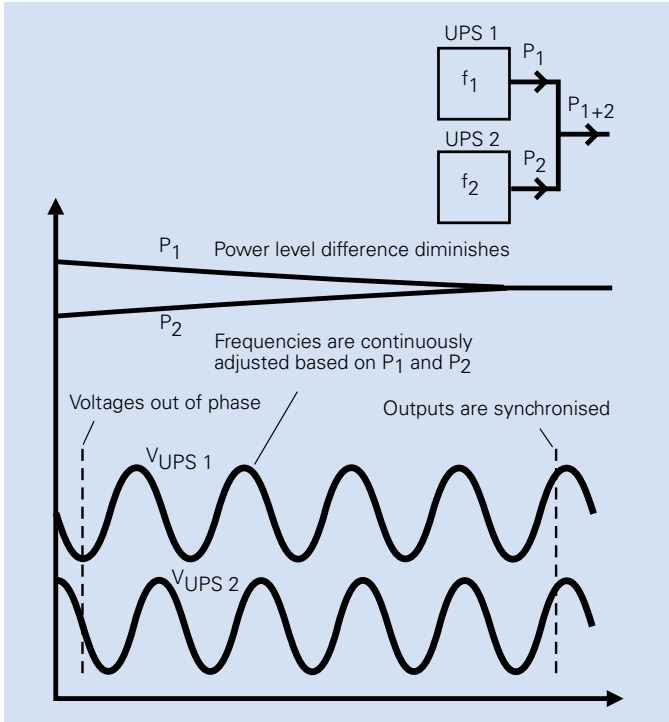


Figure 2. Well-balanced load share is achieved by adjusting output frequencies; thus the phase difference between parallel UPS output voltages is forced to zero.

The internal output impedance of a UPS is inherently mainly inductive, i.e. it looks as a small inductor in series with a stiff alternating voltage source. So, if there is any difference between the output voltage phases, it means that there is a power flow from unit to unit, resulting in unequal load sharing. In the Figure 3, two units have equal output voltages with phase angle displacement.

The voltage V_{diff} and current I_{diff} between units exhibit a 90 degrees phase shift due to the inductive source impedance. The main voltage (V_1 and V_2) and the current between units I_{diff} are in phase resulting in active power flow.

The greater the phase shift, the heavier the power imbalance. If we now introduce a controller to adjust the voltage phase by the output power, the phase difference can be forced to decrease. To adjust the phase difference to zero and to achieve accurate load sharing, we may integrate the measured phase thus arriving at power-controlled frequency. For the purpose of fast frequency locking and to enable synchronisation to external bypass, a term containing the power level change rate is added.

The flow diagram (Figure 4) shows how the load sharing proceeds.

The output power is monitored and the new frequency calculated at 3000 times per second. The measurements are also used for fast identification of a failed module. This feature is based on the computation of instantaneous output power. A negative value, even for a single instant, is an indication of an internal failure, e.g. a shorted inverter IGBT. In a response the UPS trips immediately off-line, causing minimal voltage disturbance. This feature is known as 'selective tripping'.

Hot Sync technology allows full maintenance to be performed one-by-one on redundant UPS modules without an external maintenance bypass switch. The critical load does not need to be disconnected from the conditioned power. Scheduled or unscheduled maintenance can be performed with the load supported continuously by the UPS-grade clean power.

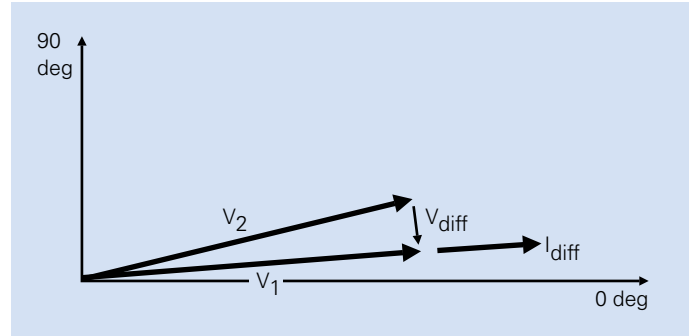


Figure 3. A phase displacement between parallel connected UPS voltages (V_1 and V_2) causes current flow between the units thus imbalances load share.

$$f_n = f_{n-1} - K_1(P_n) - K_2(\Delta P_n)$$

Where:

f_n = frequency

f_{n-1} = previous frequency

P_n = power to load

K_1 = frequency reduction factor

K_2 = power change rate factor

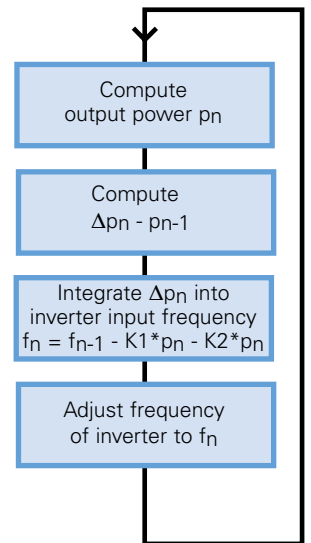


Figure 4. With HotSync algorithm, inverter phase angle is adjusted by output power and its change rate.

Accurate, equal load share is the number one characteristic to determine the integral quality and reliability of the parallel UPS system providing redundancy or increased capacity. With HotSync technology this is achieved without need for additional communications line between UPSs thus no single point of failure is added when introducing parallel modules to a system. From operational and also economical viewpoint, the achieved "close to perfect" reliability returns clear savings in the long run as every downtime incident is costly and might lead to unpredictable consequences.

ABM Technology



User benefits

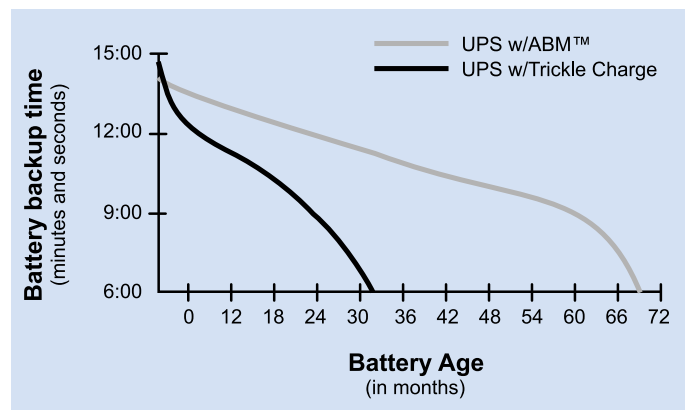
- Predictive and automatic diagnostics of battery health
- Significant extension of battery life compared to traditional charging method
- Optimisation of battery recharging time with dual mode charging method
- Automatic battery charge voltage compensation within 0 to +50°C temperature range

Superior battery management

Battery service life is a major contributor to UPS reliability. Since batteries are electrochemical devices, their performance gradually decreases over time. Premature wear-out means higher costs in terms of replacement labour and shorter service cycle. A worn battery entails a risk of unexpected load loss. In normal UPS operation, backup power is needed only occasionally and the battery 'wearing' rate depends strongly on how the full charge is being maintained. Excess charging is detrimental under any operating circumstances.

Significant extension of battery life

Eaton has created ABM® technology to extend the life of valve-regulated lead-acid batteries by applying sophisticated logic to the charging regime. Using the traditional trickle charge method, batteries become subject to electrode corrosion and electrolyte dry-out, especially in standby service use due to continuous float charging. ABM is essentially an addition of intelligence to the charging routine by preventing unnecessary charging, thus significantly retarding wear-out. ABM provides an additional feature for monitoring battery condition and advance warning about the end of battery life upon detection of a weak battery. It also optimises the recharge time, which is advantageous when there may be consecutive power outages within a short period. ABM has been used for over 15 years in our UPSs ranging from 1 to 160 kVA and is now applied in UPSs up to 1100 kVA.



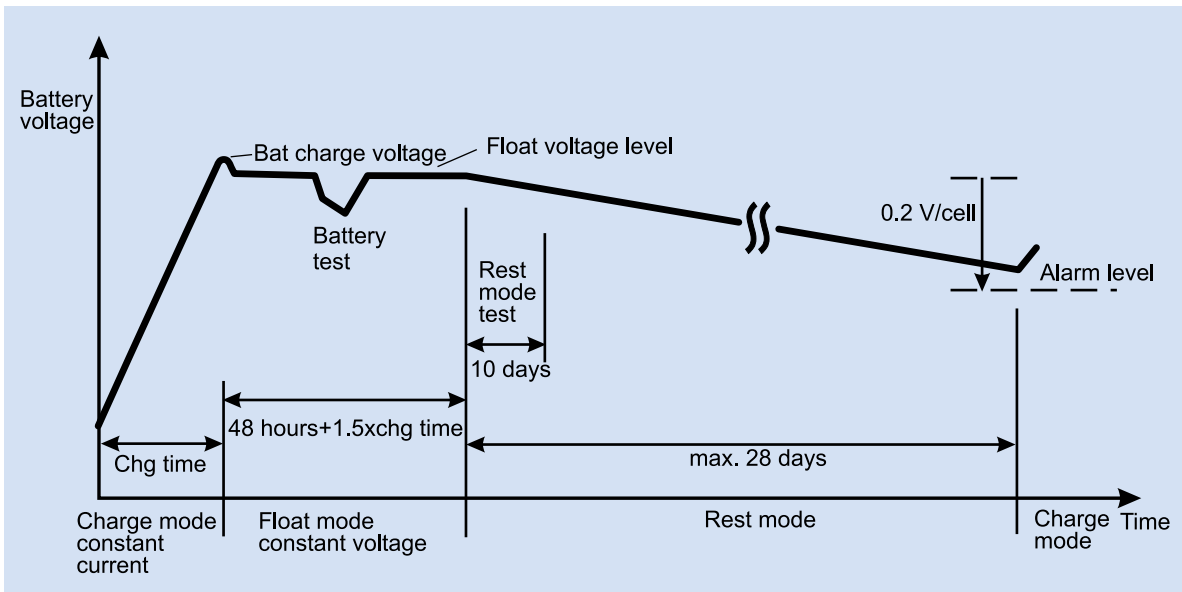
ABM technology significantly increases battery service life.

ABM Technology

ABM cycle and operation – how does it work?

The basic idea of ABM is to leave a fully charged battery in rest mode for most of the time, and then apply charge current only at certain intervals. Initially, in order to charge up a fully or partly discharged battery, the charger starts at a constant current appropriate for the battery type used. When the battery voltage reaches a set level, the operation is changed to float mode using a constant but lower voltage, thus providing an optimum recharge time. The battery is kept at this voltage for 24 hours until it comes to the first test point. This takes approximately one minute, and during this period voltage drop measurements are taken while loading the battery, giving an indication of battery condition. The float charging is continued for an additional 24 hours, plus a period equal to 1.5

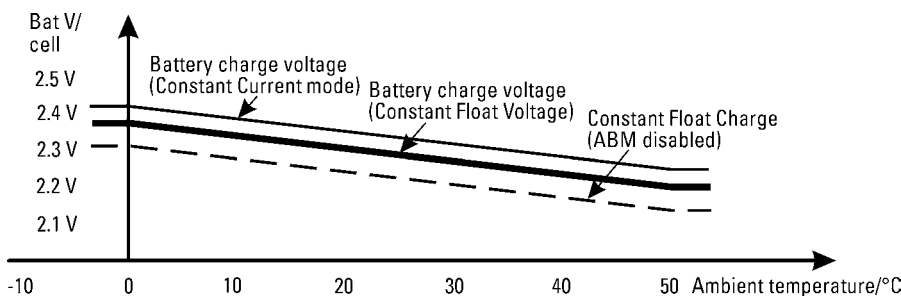
times the constant current charging time, before the rest mode is initiated. At this point, charging is discontinued for a maximum of 28 days – as if the batteries were disconnected. During the first 10 days the battery voltage is continuously monitored, and if it drops below 2.1 V/cell, the ABM restarts in charge mode and the user gets a notification of improper battery operation. If it drops below this limit after the 10-day period, charging is resumed without an alarm being raised. In short, the algorithm uses three charging stages in its operation. Thus, the batteries experience much less stress than in the case of traditional charging. A typical battery charging cycle without power interruptions is shown in the graph below.



Battery voltage during one ABM charging cycle.

For convenience, the user has the facility to disable the ABM and instead select continuous 'constant voltage' charging whereby the charger uses a constant float voltage. 'ABM enabled' is the default setting. The charger voltage levels are (by default setting) programmed to be dependent on an internal temperature sen-

sor measurement, thus providing further enhancement to battery health. The external batteries can be also provided with temperature dependent charger voltage. For this purpose a Web/SNMP card with Environmental Monitoring Probe (EMP) is required.



Temperature compensated charger between ±0°C...+50°C internal/external measurements.



Optional Web/SNMP card with EMP probe for temperature measurement of an external battery cabinet or rack.

Eaton 3S UPS

550 – 700 VA



Ideal for protecting:

- Computers and peripherals
- Broadband modems (internet and TV)
- IP telephony equipment
- POS equipment



Power protection for office and home computer equipment

Protection against power problems

- The Eaton 3S UPS helps to protect your computer equipment in case of everyday events such as lightning strikes, storms, over-demand on the utility grid, accidents, and natural disasters knocking out power without warning.
- In the event of a total blackout, the unit provides sufficient battery backup time to last through most power outages.
- The 3S also protects telephone, broadband and Ethernet line from “back door” power surges.
- The shutdown software makes it possible to automatically save your work and shut down your application without losing any data. Once the power is restored, you can continue working exactly where you left off.

Easy integration and installation

- Attractive design and glossy finish make the 3S a perfect fit for the modern office environment.
- The 3S comes with either 6 Schuko (DIN) or 6 French (FR) outlets for easy connection of typical computer configurations with peripherals (IEC model also available with 8 outlets).
- The 3S features a HID-compliant USB port (cable supplied), for automatic integration with common operating systems (Windows/Mac OS/Linux).
- Compact unit fits on or under your desk or can be mounted on a wall.
- Easy-to-replace battery helps to extend UPS service life.

Eaton 3S UPS

1. 3 Schuko or FR outlets with surge protection
2. 3 Schuko or FR outlets with battery backup and surge protection
3. On/Off button + LED interface
4. USB port
5. Dateline protection
6. Replaceable battery
7. Reset button (circuit breaker)
8. Wall-mounting system



Eaton 3S 700 DIN



Eaton 3S 700 IEC

1. 4 IEC outlets with surge protection
2. 4 IEC outlets with battery backup and surge protection
3. On/Off button + LED interface
4. USB port
5. Dateline protection
6. Replaceable battery
7. Reset button (circuit breaker)
8. Wall-mounting system

| TECHNICAL SPECIFICATIONS | Eaton 3S 550 | Eaton 3S 700 |
|---------------------------------------|--|-------------------|
| Rating (VA/W) | 550 VA / 330 W | 700 VA / 420 W |
| Application | | |
| Output connection (FR/DIN models) | 3 outlets with battery backup and surge protection + 3 outlets with surge protection | |
| Output connection (IEC models) | 4 outlets with battery backup and surge protection + 4 outlets with surge protection | |
| Characteristics | | |
| Input voltage | Up to 161-284 V (adjustable) | |
| Output voltage | 230 V (settable to 220 V, 230 V or 240 V) | |
| Frequency | 50-60 Hz autoselect | |
| Input protection | Resettable circuit breaker | |
| Battery | | |
| Battery type | Compact, sealed lead-acid (replaceable) | |
| Battery test | Yes | Yes |
| Cold start (no mains power) | Yes | Yes |
| Deep-discharge protection | Yes | Yes |
| Battery replacement indicators | LED | LED |
| 50% load backup | 10 min | 9 min |
| 70% load backup | 6 min | 6 min |
| Communication | | |
| Communications port | HID-compliant USB port for automatic integration with most common operating systems (Windows XP, Vista and 7, Linux, Mac OS X), cable supplied | |
| Line protection | Tel/fax/modem/internet/Ethernet | |
| Standards compliance | | |
| Safety | IEC/EN 62040-1, CE mark | |
| EMC | IEC 62040-2 | |
| Dimensions, weight and colour | | |
| Dimensions H x W x D | 86 x 140 x 335 mm | 86 x 170 x 335 mm |
| Weight | 2.9 kg | 3.8 kg |
| Colour | Black | |
| Customer service & support | | |
| 2-year warranty | Standard product exchange, including battery | |
| Warranty+ | Optional 3-year warranty (depending on the country please visit www.eaton.com/powerquality) | |

| Part numbers | 550 | 700 |
|----------------------|----------|----------|
| French sockets (FR) | 3S550FR | 3S700FR |
| Schuko sockets (DIN) | 3S550DIN | 3S700DIN |
| IEC sockets | 3S550IEC | 3S700IEC |



FR DIN IEC



Eaton 5110 UPS

500, 700 and 1000 VA



Power protection for:

- Workstations
- Office computers
- Office equipment



Line interactive UPS

Highest power performance

- The 5110 UPS offers an appropriate level of power protection for office computers and workstations.
- The UPS does not only offer backup when power is totally lost, it also regulates the voltage and thereby offers protection against five of nine typical power problems: power failures, sags, surges, undervoltage and overvoltage.
- All 5110 models have four battery backup protected outlets as well as four "surge-protection" only outlets for the load not needing battery backup.

Unmatched reliability

- Buck and Boost operation corrects a wide range of input voltage variations through continuous regulation, without the use of batteries.
- Extend UPS service life with user-replaceable batteries.
- Protect networked equipment from "back door" power surges coming through LAN or telephone lines.

Outstanding versatility

- The 5110 occupies a small footprint and can be placed on its side under the monitor.
- The UPS is equipped with a USB port and if you choose to install the bundled shutdown software it automatically manage your operating system graceful shutdown in case of extended power outages.
- All models come bundled with the shutdown software, USB cable and two IEC-IEC load cables as well as a RJ-11 cable.

Eaton 5110 UPS



1. LED user interface
2. Panel for replacing batteries
3. USB port
4. Dataline protection
5. 4xIEC 10A + 4xIEC 10A surge only
6. Circuit breaker reset button



TECHNICAL SPECIFICATIONS

| Rating | 500 VA | 700 VA | 1000 VA |
|--|---|---|---|
| Part number | 103004261-5591 | 103004262-5591 | 103004263-5591 |
| Capacity (VA/Watts) | 500/300 | 700/420 | 1000/600 |
| Dimensions W*D*H (mm) | 87*260*270 mm | 87*260*270 mm | 87*384*270 mm |
| Weight (kg) | 6 kg | 8 kg | 12 kg |
| Input connection | IEC320/ 10A | IEC320/10A | IEC320/10A |
| Output connection | 4*IEC320 10A + 4 IEC320 10A surge only | 4*IEC320 10A + 4 IEC320 10A surge only | 4*IEC320 10A + 4 IEC320 10A surge only |
| Typical runtime (full load) (half load) | 3 min 8 min | 3 min 8 min | 5 min 15 min |
| Bundled with | (2) IEC-IEC cables Software & USB cable RJ 11 cable | (2) IEC-IEC cables Software & USB cable RJ 11 cable | (2) IEC-IEC cables Software & USB cable RJ 11 cable |

Operational

| | |
|-----------------------------|---|
| Nominal Input voltage (VAC) | 230 VAC |
| Input voltage range | 178-275 VAC |
| Operating frequency | 50/60 Hz auto sensing |
| Nominal Output voltage | 230 VAC |
| Output voltage regulation | 230 V +/- 10% |
| Overload capacity | 130%+/- 10% immediate shutdown 105% shutdown after 5 min |
| Efficiency | 95%, normal mode |

User interface

| | |
|------------------------------|-----------------------------------|
| LED | UPS On, UPS on Battery, Overload, |
| Standard communication ports | USB |

Environmental

| | |
|--------------------------|--------------|
| Operating temperature | 0°C - +40 °C |
| Altitude | < 3000 m |
| Audible noise at 1 meter | < 40 dB |

Certification

| | |
|----------|----|
| Markings | CE |
|----------|----|

BACKUP TIME TABLE

| Load | 500 VA | 700 VA | 1000 VA |
|------|--------|---------|---------|
| 50W | 40 min | 50 min | 80 min |
| 100W | 17 min | 20 min | 60 min |
| 150W | 10 min | 14 min | 40 min |
| 200W | 6 min | 9 min | 25 min |
| 250W | 4 min | 7,5 min | 20 min |
| 300W | 3 min | 6 min | 17 min |
| 350W | | 4 min | 14 min |
| 400W | | 3 min | 12 min |
| 450W | | | 10 min |
| 500W | | | 8 min |
| 550W | | | 6 min |
| 600W | | | 5 min |



Eaton 5115 UPS

500 – 1400 VA



Power protection for:

- Small servers
- Network devices
- Storage systems



Line interactive UPS

Highest power performance

- The 5115 UPS protects critical equipment from five of nine typical power problems: power failures, sags, surges, under-voltage and overvoltage.
- The UPS guarantees pure sine wave output during battery operations. The connected load continues to receive high quality electrical wave and operates smoothly even during power outages.

Unmatched reliability

- Buck and Boost operation corrects a wide range of input voltage variations through continuous regulation, without the use of batteries and ensures consistent input voltage to the loads protected.
- ABM technology uses an innovative three-stage charging technique, that only recharges the battery when necessary, so the battery experiences less corrosion and service life is prolonged by up to 50%.
- Batteries can be hot-swapped without ever having to shut down connected equipment.

Outstanding versatility

- Incorporating both serial and USB communications ports, the Eaton 5115 is well-equipped to meet today's communication requirements
- The 5115 comes complete with the Eaton Software Suite CD, where wizard guides you through the installation process and helps you choose components that are compatible with your systems to make the installation of the shutdown software as easy as possible.

Eaton 5115 UPS



1. LED user interface
2. Panel for replacing batteries
3. 1 USB port + 1 serial port
4. Dataline (network) protection
5. 4 to 6 IEC 10A sockets



TECHNICAL SPECIFICATION

| Rating | 500 VA | 750 VA | 1000 VA | 1400 VA |
|------------------------------|--|---------------|---------------|---------------|
| Part number | 05146549-5591 | 05146555-5591 | 05146561-5591 | 05146567-5591 |
| Capacity (VA/watts) | 500/320 | 750/500 | 1000/670 | 1400/950 |
| Dimensions WxDxH (mm) | 150x268x185 | 150x333x185 | 150x333x185 | 150x388x185 |
| Weight (kg) | 8 | 12 | 13 | 17 |
| Input connection | IEC320/10A | IEC320/10A | IEC320/10A | IEC320/10A |
| Output connection | 4xIEC320/10A | 4xIEC320/10A | 6xIEC320/10A | 6xIEC320/10A |
| Typical runtime (full load) | 5 min | 6 min | 5 min | 5 min |
| (half load) | 15 min | 17 min | 15 min | 15 min |
| Operational | | | | |
| Nominal input voltage (Vac) | 220/230/240 Vac | | | |
| Input voltage range | 184-276 VAC(± 20% of nominal) | | | |
| Operating frequency | 50/60 Hz auto sensing | | | |
| Input power factor | Same as load | | | |
| Nominal output voltage | 220/230/240 Vac | | | |
| Output voltage regulation | -10%/+6% of selected nominal voltage | | | |
| Overload capacity | 110% 3 min; 150% 10 cycles | | | |
| Efficiency | 95% | | | |
| User interface | | | | |
| LED | Four LEDs; UPS on, UPS on battery, overload, alarm | | | |
| Standard communication ports | RS232 & USB | | | |
| Optional | External SNMP adapter | | | |
| Environmental | | | | |
| Operating temperature | 0°C - +40°C | | | |
| Storage temperature | -15°C -+55°C | | | |
| Altitude | <3000 m | | | |
| Audible noise at 1 metre | <40 dB | | | |
| Certification | | | | |
| Markings | CE | | | |
| Safety | IEC 62040-1, UL 1778 | | | |
| EMC | IEC 62040-2 | | | |

EATON 5115 RUNTIMES FORTYPICAL APPLICATIONS

| Load VA / W | 500 VA | 750 VA | 1000 VA | 1400 VA |
|-----------------|--------|--------|---------|---------|
| 200 VA / 128 W | 17 | 38 | 41 | 58 |
| 300 VA / 192 W | 11 | 27 | 28 | 41 |
| 500 VA / 320 W | 5 | 14 | 15 | 28 |
| 600 VA / 400 W | | 9 | 10 | 19 |
| 750 VA / 500 W | | 6 | 8 | 14 |
| 900 VA / 600 W | | | 6 | 10 |
| 1000 VA / 670 W | | | 5 | 8 |
| 1200 VA / 800 W | | | | 6 |
| 1400 VA / 950 W | | | | 5 |



Eaton 5115 RM UPS

500 – 1500 VA



5115 RM front panel

Power protection for:

- Small rack servers
- Rack network devices
- Small storage equipment



Line interactive UPS

Highest power performance

- The 5115 RM UPS protects critical equipment from five of nine typical power problems: power failures, sags, surges, undervoltage and overvoltage.
- The UPS guarantees pure sine wave output during battery operations. The connected load continues to receive high quality electrical wave and operates smoothly event during power outages.

Unmatched reliability

- Eaton ABM technology uses an innovative three-stage charging technique, that only recharges the battery when necessary, so the battery experiences less corrosion and service life is prolonged by up to 50%.
- Batteries can be hot-swapped without ever having to shut down connected equipment.
- The load segment control makes it possible to optimize the runtime of critical devices by shutting down non essential devices first and saving battery capacity for the most critical ones.

Outstanding versatility

- The 5115 design provides high power density, occupying only 1U (45 mm), which conserves valuable space in the rack for other equipment.
- USB and RS232 communication is offered as standard plus an extra slot for optional communication card (including SNMP/Web card).
- The UPS comes complete with the Eaton Software Suite CD, where wizard guides you through the installation process and helps you choose components that are compatible with your systems to make the installation of the shutdown software as easy as possible.

Eaton 5115 RM UPS



1. Led user interface
2. Panel for replacing batteries
3. 1 USB port + 1 serial port
4. Data line protection
5. Load segments
6. Communication card slot

TECHNICAL SPECIFICATIONS

| Rating | 500 VA | 750 VA | 1000 VA | 1500 VA |
|-----------------------------|----------------|----------------|----------------|----------------|
| Part number | 103003267-6591 | 103003270-6591 | 103003273-6591 | 103003276-6591 |
| Capacity (VA/watts) | 500/320 | 750/500 | 1000/670 | 1500/1000 |
| Dimensions WxDxH (mm) | 440x580x45 | 440x580x45 | 440x580x45 | 440x580x45 |
| Weight (kg) | 9 | 15 | 15 | 19 |
| Input connection | IEC320/10A | IEC320/10A | IEC320/10A | IEC320/10A |
| Output connection | 4xIEC320/10A | 4xIEC320/10A | 4xIEC320/10A | 4xIEC320/10A |
| Typical runtime (full load) | 5 min | 6 min | 5 min | 5 min |
| (half load) | 15 min | 17 min | 15 min | 15 min |

Operational

| | |
|-----------------------------|--------------------------------------|
| Nominal input voltage (Vac) | 220/230/240 Vac |
| Input voltage range | (± 20% of nominal) |
| Operating frequency | 50/60 Hz auto sensing |
| Nominal output voltage | 220/230/240 Vac |
| Output voltage regulation | -10%/+6% of selected nominal voltage |
| Overload capacity | 110% 3 min; 150% 10 cycles |
| Efficiency | 95% |

User interface

| | |
|------------------------------|--|
| LED | Four LEDs; UPS on, UPS on battery, overload, alarm |
| Standard communication ports | RS232/USB and X-slot |
| Optional | Internal SNMP adapter |

Environmental

| | |
|--------------------------|---------------|
| Operating temperature | 0°C - +40°C |
| Storage temperature | -15°C - +55°C |
| Altitude | <3000 m |
| Audible noise at 1 metre | <40 dB |

Certification

| | |
|----------|-----------------------|
| Markings | CE |
| Safety | IEC 62040-1 & UL 1778 |
| EMC | IEC 62040-2 |

Eaton 5115 RM runtimes for typical applications

| Load VA / W | 500 VA | 750 VA | 1000 VA | 1500 VA |
|------------------|--------|--------|---------|---------|
| 200 VA / 128 W | 17 | 38 | 41 | 76 |
| 300 VA / 192 W | 11 | 27 | 28 | 58 |
| 500 VA / 320 W | 5 | 14 | 15 | 28 |
| 600 VA / 400 W | | 9 | 10 | 19 |
| 750 VA / 500 W | | 6 | 8 | 14 |
| 900 VA / 600 W | | | 6 | 10 |
| 1000 VA / 670 W | | | 5 | 8 |
| 1200 VA / 800 W | | | | 6 |
| 1500 VA / 1000 W | | | | 5 |



Eaton 5130 UPS

1250, 1750, 2500, 3000 VA



2U rackmount installation

Power protection for:

- IT and networking environments
- Servers, networking gear
- Telecommunications, VoIP, security systems



Line interactive UPS

Highest power performance

- The 5130 protects connected equipment from five of the most common power anomalies: failures, surges, sags, under-voltage and overvoltage.
- 0.9 power factor: more real power to your protected load. By delivering more real output power, the 5130 powers more servers than another UPS of equivalent VA rating with a lower power factor. 5130 is compatible with all modern IT equipment.

Unmatched reliability

- Load segment control enables prioritized shutdown of non-essential equipment during outages to maximize battery runtime for critical devices. Load segment control can also be used to remotely re-boot locked-up network equipment or manage scheduled shutdowns and sequential startups.
- You can extend the runtime to several hours by adding up to four external battery modules. Each external battery module occupies only 2U for most models (3U for reduced depth, 3000 VA models).
- With hot-swappable batteries, you can replace a battery module without disrupting server room operations or power to protected equipment. With an optional, hot-swap maintenance bypass module, you can even replace the entire UPS.

Outstanding versatility

- The UPS offers the choice of rackmount or tower installation. Pedestal and rail kits are included in all models at no extra charge.
- The 2U model is optimized for rack mounting but is easily deployed as a tower. The 3U unit is optimized for tower deployment or short-depth racks, which makes it especially suitable for telecom equipment racks.
- The 5130 offers Serial and USB communication plus an extra slot for optional communication card (including SNMP/Web card, relay contact card) allowing remote monitoring in a variety of networking environments.
- The UPS comes complete with the Eaton Software Suite CD, including SNMP compatible power management software.

Eaton 5130 UPS



1. Panel for replacing batteries
2. Load segments
3. USB & Serial ports + RPO/ROO connector
4. Communication card slot
5. LED user interface
6. EBM connector



TECHNICAL SPECIFICATIONS

General

| | |
|----------------------|--|
| LEDs | 13 status-indicating LEDs |
| Topology | Line interactive |
| Diagnostics | Full system self-test at power up |
| Transfer time | 1–4 ms typical |
| RPO/RPO | Rear deck emergency stop connector (for remote on/off and power off) |
| Rail kit/tower stand | Included with all units |

Electrical Input

| | |
|----------------------------------|--|
| Nominal voltage | 230 Vac |
| Voltage range* | 160–294 V |
| Frequency | 50/60 Hz |
| Frequency range | 47–70 Hz for 50 Hz operation 56.5–70 Hz for 60 Hz operation |
| Dedicated circuit breaker rating | 700–2000 VA: 10A 3000 VA: 16A |

Electrical Output

| | |
|-------------------------------|--|
| Power factor | 0.9 |
| On utility voltage regulation | 184–265 Vac |
| On battery voltage regulation | -10%, +6% of nominal |
| Efficiency | Normal or line mode: >94% |
| Over current protection | Electronic current limit |
| Load crest factor | 3:1 |
| Load segments | Two groups of two individually controlled output receptacles |

Battery

| | |
|---------------------|---|
| Battery replacement | Hot-swappable internal batteries |
| Start-on-battery | Allows start of UPS without utility input |

Communications

| | |
|------------------------------|--|
| Serial port | RS-232 (RJ45) port |
| USB port | As standard (HID), for communicating with Windows XP/Vista |
| Optional communication cards | MS- format cards (Network or Relay) |
| Cables | RS 232 and USB communications cables included |
| Power management software | Eaton Software Suite CD-ROM (bundled with UPS) |

Environmental

| | |
|-----------------------|-----------------------------------|
| Safety markings | CE; C-Tick; TUVus |
| Safety conformance | IEC/EN 62040-1, UL 1778 |
| EMC compliance | IEC/EN 62040-2 EN 50091-2 class B |
| Operating temperature | 0°C to +40°C |
| Storage temperature | -15°C to +50°C |
| Relative humidity | 20–95% non-condensing |
| Audible noise | Max 45 dBA |

| 5130 model | Line mode, BTUs/hr | Battery mode, BTUs/hr |
|------------|--------------------|-----------------------|
| 1250 VA | 250 | 1.682 |
| 1750 VA | 348 | 2.340 |
| 2500 VA | 490 | 2.559 |
| 3000 VA | 588 | 3.071 |

| Description | Part number | Rating (VA/Watts) | Input connection | Output receptacles | Dimensions H x W x D, mm | Weight, kg |
|------------------|----------------|-------------------|------------------|------------------------------------|--------------------------|------------|
| PW5130i1250-XL2U | 103006590-6591 | 1250/1150 | IEC C14-10A | (8) IEC-C13-10A | 86 x 441 x 509 | 24,3 |
| PW5130i1750-XL2U | 103006591-6591 | 1750/1600 | IEC C14-10A | (8) IEC-C13-10A | 86 x 441 x 509 | 26,6 |
| PW5130i2500-XL2U | 103006592-6591 | 2500/2250 | IEC C20-16A | (1) IEC-C19-16A (8) IEC-C13-10A | 86 x 441 x 634 | 33,8 |
| PW5130i3000-XL2U | 103006593-6591 | 3000/2700 | IEC C20-16A | (1) IEC-C19-16A (8) IEC-C13-10A | 86 x 441 x 634 | 33,8 |
| PW5130i3000-XL3U | 103006594-6591 | 3000/2700 | IEC C20-16A | (1) IEC-C19-16A (8) IEC-C13-10A | 131 x 441 x 484 | 34,3 |

Extended Battery Modules

| | | | | | | |
|-------------------|----------------|----|----|----|-----------------|------|
| PW5130N1750-EBM2U | 103006587-6591 | NA | NA | NA | 86 x 441 x 509 | 30,4 |
| PW5130N3000-EBM2U | 103006589-6591 | NA | NA | NA | 86 x 441 x 634 | 41,7 |
| PW5130N3000-EBM3U | 103006588-6591 | NA | NA | NA | 131 x 441 x 484 | 41,7 |

| BATTERY RUNTIMES* | Internal batteries | | +1 EBM | | +2 EBMs | | +3 EBMs | | +4 EBMs | |
|---------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load |
| PW5130i1250-XL2U | 13 | 20 | 52 | 105 | 90 | 175 | 125 | 225 | 175 | 300 |
| PW5130i1750-XL2U | 9 | 14 | 33 | 60 | 55 | 100 | 80 | 145 | 105 | 180 |
| PW5130i2500-XL2U | 10 | 17 | 50 | 85 | 80 | 130 | 130 | 210 | 180 | 290 |
| PW5130i3000-XL2U/3U | 9 | 15 | 38 | 60 | 70 | 100 | 90 | 150 | 120 | 210 |



Eaton 9130 UPS

700 – 6000 VA



Multilingual LCD

Advanced power protection for:

- IT and networking environments
- Servers, networking gear
- Telecommunications, VoIP, security systems
- Medical systems
- Diagnostics and medical screening
- Patient record archives
- Manufacturing systems
- Chip fabrication
- Pharmaceutical production
- Chemical processing



Double conversion UPS

Highest power performance

- Double conversion topology. The 9130 constantly monitors power conditions and regulates voltage and frequency. Even when presented with the most severe power problems, UPS's output remains within 3% of nominal voltage.
- More real power. High 0.9 output power factor enables the 9130 to provide its full power capability to modern IT equipment.
- Highest efficiency to reduce utility and cooling spending. The 9130 can provide up to 95% efficiency in online double conversion mode and up to 98% in high-efficiency mode.

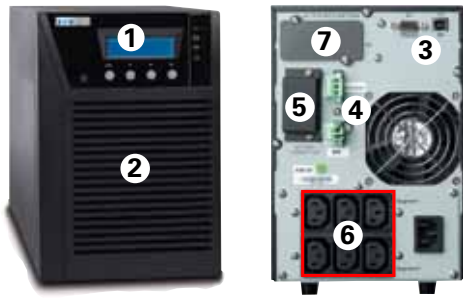
Unmatched reliability

- The internal bypass allows service continuity in case of internal fault, a maintenance bypass is also available (as option) for easy replacement of the UPS without powering down critical systems.
- Stronger, longer battery life. Eaton ABM® battery management technology uses an innovative three-stage charging technique, that only recharges the battery when necessary, so the battery experiences less corrosion and service life is prolonged by up to 50%.
- Batteries can be hot-swapped without ever having to shut down connected equipment.
- Possibility to add more runtime at any time with up to four external hot-swappable battery modules to run systems for hours if necessary.
- Enables prolonged runtime of essential equipment during power outages by allowing for orderly, remote shutdown of non-critical systems and processes thanks to a capability to control load segments (available up to 3kVA).

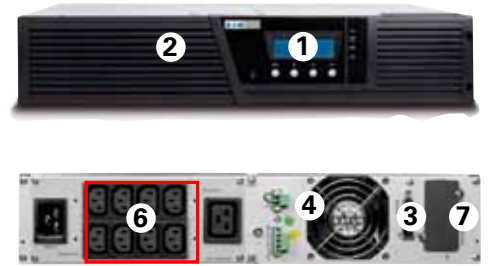
Outstanding versatility

- One platform, two factors, dozens of choices. Up to 3000 VA of UPS power is packed into only 2U of rack space. The tower option is about the size of a modern, compact PC.
- Enhanced configuration capability through easily navigated multilingual graphical display.
- Remote monitoring. The 9130 comes complete with the Eaton Software Suite CD including SNMP-compatible power management software providing control and visibility over all your UPS systems.
- Connectivity options are available for almost any network environment.

Eaton 9130 UPS



1. Multilingual graphical LCD display
2. Panel for replacing batteries
3. 1 USB port + 1 serial port
4. 1 Relay Output + 1 EPO connector
5. EBM battery unit connector
6. Load segments
7. Communication card slot



TECHNICAL SPECIFICATIONS

| General | |
|----------------------|--|
| User interface | Graphical LCD with blue backlight and text in English, French, German, Russian and Spanish |
| LEDs | Four status-indicating LEDs |
| Topology | True online, double-conversion |
| Diagnostics | Full system self-test |
| UPS bypass | Automatic bypass |
| Rail kit | Included with all rackmount units |
| Electrical Input | |
| Nominal voltage | 220–240V |
| Voltage range | up to 120–276 VAC (depending on load level) |
| Frequency range | 40–70 Hz (50/60 Hz) |
| Electrical Output | |
| Power factor | 0.9 |
| Voltage | ±3 % of nominal regulation (on utility and battery) |
| Frequency regulation | ±3 Hz online |
| Load crest factor | 3 to 1 |

| Communications | |
|---|--|
| Ports | RS-232 and USB HID port as standard |
| Relay output | Common alarm standard |
| Optional communication cards (BD/MS Slot) | SNMP/Web card for monitoring in SNMP-based networks. Relay card for remote shutdown of IBM AS/400 systems. MODBUS for integration to industrial environment. |
| Environmental | |
| Safety and EMC markings | IEC/EN 62040-1, IEC/EN 62040-2, CE marking |
| Audible noise | <50 dB |
| Ambient operating | 0°C to +40°C |
| Storage temperature | -20°C to +40°C with batteries and -25°C to +55°C without batteries |
| Relative humidity | 5–90% non-condensing |

| Description | Part number | Rating (VA/Watts) | Input connection | Output receptacles | Dimensions H x W x D, mm | Weight, kg |
|---------------------------------------|----------------|-------------------|------------------|--------------------|--------------------------|------------|
| Tower Models | | | | | | |
| PW9130i700T | 103006433-6591 | 700/630 | C14 | (6) C13 | 230 x 160 x 350 | 12.2 |
| PW9130i1000T-XL | 103006434-6591 | 1000/900 | C14 | (6) C13 | 230 x 160 x 380 | 14.5 |
| PW9130i1500T-XL | 103006435-6591 | 1500/1350 | C14 | (6) C13 | 230 x 160 x 430 | 19.0 |
| PW9130i2000T-XL | 103006436-6591 | 2000/1800 | C14 | (8) C13, (1) C19 | 325 x 214 x 410 | 34.5 |
| PW9130i3000T-XL | 103006437-6591 | 3000/2700 | C20 | (8) C13, (1) C19 | 325 x 214 x 410 | 34.5 |
| PW9130i5000T-XL | 103007841-6591 | 5000/4500 | Hardwire | Hardwire | 574 x 244 x 542 | 75.5 |
| PW9130i6000T-XL | 103007842-6591 | 6000/5400 | Hardwire | Hardwire | 574 x 244 x 542 | 75.5 |
| Tower Extended Battery Modules | | | | | | |
| PW9130N1000T-EBM | 103006438-6591 | NA | NA | NA | 230 x 160 x 380 | 18.5 |
| PW9130N1500T-EBM | 103006439-6591 | NA | NA | NA | 230 x 160 x 430 | 24.3 |
| PW9130N3000T-EBM | 103006440-6591 | NA | NA | NA | 325 x 214 x 410 | 50.0 |
| PW9130N6000T-EBM | 103007843-6591 | NA | NA | NA | 574 x 244 x 542 | 111 |
| Rack Models | | | | | | |
| PW9130i1000R-XL2U | 103006455-6591 | 1000/900 | C14 | (6) C13 | 86.5 x 438 x 450 | 16 |
| PW9130i1500R-XL2U | 103006456-6591 | 1500/1350 | C14 | (6) C13 | 86.5 x 438 x 450 | 19 |
| PW9130i2000R-XL2U | 103006457-6591 | 2000/1800 | C14 | (8) C13, (1) C19 | 86.5 x 438 x 600 | 29 |
| PW9130i3000R-XL2U | 103006463-6591 | 3000/2700 | C20 | (8) C13, (1) C19 | 86.5 x 438 x 600 | 29.5 |
| Rack Extended Battery Modules | | | | | | |
| PW9130N1000R-EBM2U | 103006458-6591 | NA | NA | NA | 86.5 x 438 x 450 | 22.1 |
| PW9130N1500R-EBM2U | 103006459-6591 | NA | NA | NA | 86.5 x 438 x 450 | 28.1 |
| PW9130N3000R-EBM2U | 103006460-6591 | NA | NA | NA | 86.5 x 438 x 600 | 41.1 |

| BATTERY RUNTIMES* | Internal batteries | | +1 EBM | | +2 EBMs | | +3 EBMs | | +4 EBMs | |
|---------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load | 75% Load | 50% Load |
| Rack models | | | | | | | | | | |
| PW9130i1000R-XL2U | 13 | 22 | 55 | 82 | 103 | 186 | 151 | 250 | 223 | 312 |
| PW9130i1500R-XL2U | 11 | 18 | 47 | 81 | 83 | 143 | 126 | 208 | 195 | 262 |
| PW9130i2000R-XL2U | 13 | 24 | 63 | 95 | 118 | 190 | 170 | 242 | 221 | 345 |
| PW9130i3000R-XL2U | 8 | 14 | 34 | 62 | 70 | 92 | 96 | 156 | 130 | 211 |
| Tower models | | | | | | | | | | |
| PW9130i700T-XL | 12 | 19 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| PW9130i1000T-XL | 13 | 22 | 55 | 82 | 103 | 186 | 151 | 250 | 223 | 312 |
| PW9130i1500T-XL | 11 | 18 | 47 | 81 | 83 | 143 | 126 | 208 | 195 | 262 |
| PW9130i2000T-XL | 21 | 34 | 81 | 130 | 145 | 198 | 184 | 293 | 248 | 431 |
| PW9130i3000T-XL | 12 | 20 | 49 | 79 | 90 | 143 | 134 | 180 | 165 | 240 |
| PW9130i5000T-XL | 20 | 34 | 81 | 136 | 153 | 232 | 217 | 328 | 273 | 477 |
| PW9130i6000T-XL | 16 | 27 | 66 | 107 | 120 | 194 | 178 | 267 | 231 | 372 |

* Runtimes are shown at a 0.7 power factor. Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.



Eaton 9135 UPS

5000 – 6000 VA



Hot swappable batteries



LCD rotatable display

Advanced power protection for:

- Medium-density data centers
- Banking and security systems
- Manufacturing process control
- Retail point-of-sale systems
- Telecommunications/VoIP equipment



Double conversion UPS

Highest power performance

- The 9135 is constantly monitoring power conditions—regulating both voltage and frequency. Even when presented with the most severe power problems, this UPS's output remains within two percent of nominal voltage.
- Under normal power conditions, the 9135 can operate in high-efficiency mode at up to 97 percent efficiency thus decreasing utility and cooling bills. In double conversion mode, the UPS operates at up to 91 percent efficiency.

Unmatched reliability

- With a wide range of acceptable input voltages, this UPS does not depend on batteries to smooth out power fluctuations. Batteries are conserved for those times when utility power is highly unstable or completely out.
- The 9135 features hot-swappable components and an automatic internal bypass. Users can even remove and replace the battery and power modules without powering down the UPS or interrupting power to loads.
- Up to four external battery modules (EBMs) can be added to deliver more than an hour of extended runtime at full load—or hours under lighter loads. Each EBM occupies only 3U of rack space.
- With load segments users can also remotely re-boot locked-up network equipment. During a power outage, you could shut down power to less essential loads to extend battery backup time for more critical devices.

Outstanding versatility

- The 9135 increases power density, delivering 5000 - 6000 VA/4200W in only 3U of rack space, freeing more rack space for IT and telecom equipments.
- The UPS offers deployment versatility through rack and tower installation options with rail kits and pedestals provided.
- This UPS is even more user-friendly than its predecessors offering greater distribution capabilities, with eight IEC 10A & two IEC 16A outlets to power multiple pieces of equipment without a PDU.
- An intuitive LCD interface provides detailed information and menu-driven functions for UPS management. The blue, backlit LCD screen displays four lines of alphanumeric information. LEDs clearly display UPS status.
- The 9135 comes complete with the Eaton Software Suite CD, including SNMP compatible power management software.

Eaton 9135 UPS



1. Multilingual graphical LCD display
2. Panel for replacing batteries
3. USB & Serial ports, Contact port, EPO connector
4. EBM battery unit connector
5. Load segments
6. Communications card slot

TECHNICAL SPECIFICATIONS

General

| | |
|----------------|--|
| User interface | Graphical LCD with blue backlight and text in English, French, German, Portuguese, Italian and Spanish |
| LEDs | Four status-indicating LEDs |
| Topology | Double-conversion |
| Diagnostics | Full system self-test |
| UPS bypass | Automatic bypass |
| Rail kit | Included with all units |

Electrical Input

| | |
|----------------------------------|--|
| Nominal voltage | 230V (220V-240V user selectable) |
| Voltage range | 156–280 Vac (output PF 0.7) |
| Power draw of UPS (full load) | 5000VA: 21.7A @230V 6000VA: 26A @230V |
| Recommended input-breaker rating | 35A |
| Frequency | 50/60 Hz autoselect |
| Frequency range | 40–70 Hz |

Electrical Output

| | |
|----------------------|--|
| Power factor | 0.7 |
| On utility voltage | ±2% of nominal regulation |
| On battery voltage | ±2% of nominal regulation |
| Efficiency | >97% in high-efficiency mode; 91% in normal mode |
| Frequency regulation | ±3 Hz online |
| Load crest factor | 3 to 1 |

Battery

| | |
|--------------------------|---|
| Internal battery type | 5.5 Ah, sealed, lead-acid; maintenance free |
| External battery modules | Up to four per 9135, rail kits included for rack mounting modules |
| EBM battery type | 5.5 Ah, sealed, lead-acid; maintenance free |

| | |
|-----------------------|---|
| Battery recharge time | Six (6) hours to recover 90 percent of nominal backup time after 100 percent RCD load discharge |
| Battery replacement | Hot-swappable internal and external batteries |
| Start-on-battery | Allows start of UPS without utility input |

Communications

| | |
|------------------------------|--|
| Serial port | RS-232 standard, RS-232 cable provided |
| USB port | HID standard, for communicating with Windows XP/ Vista |
| Relay output | DB-9 Dry Contact-common alarm standard |
| Software | Eaton Intelligent Power Software Suite |
| Optional communication cards | MS format cards: Network for direct control and monitoring in SNMP networks, Relay for shutdown of IBM AS/400 systems, Modbus for integration in Modbus environment. |

Environmental

| | |
|---------------------|---|
| Safety markings | CE, GS |
| EMC | IEC/EN 62 040-2 class A |
| Audible noise | Max 46 dB |
| Ambient operating | 0°C to +40°C |
| Storage temperature | -20°C to +40°C with batteries and -25°C to +55°C without batteries |
| Relative humidity | 5–90% non-condensing |

Heat dissipation (BTUs/hr)

| Operating mode | Efficiency | 5 kVA | 6 kVA |
|-----------------|------------|-------|-------|
| Normal | 91% | 1150 | 1350 |
| Battery | 86% | 1650 | 1960 |
| High efficiency | 97% | 370 | 450 |

| Description | Part number | Rating (VA/Watts) | Input plug | Output receptacles | Dimensions H x W x D, mm | Weight, kg |
|---------------------------------|----------------|-------------------|------------|------------------------------|--------------------------|------------|
| Rack Tower Models | | | | | | |
| PW9135G5000-XL3UEU | 103006721-6591 | 5000/3500 | Hardwired | Hardwired + (2) C19, (8) C13 | 130 x 444 x 741 | 57 |
| PW9135G6000-XL3UEU | 103006722-6591 | 6000/4200 | Hardwired | Hardwired + (2) C19, (8) C13 | 130 x 444 x 741 | 57 |
| Extended Battery Modules | | | | | | |
| PW9135N6000-EBM3U | 103006723-6591 | NA | NA | NA | 130 x 444 x 650 | 77.5 |

| BATTERY RUNTIMES* | Internal batteries | | +1 EBM | | +2 EBMs | | +3 EBMs | | +4 EBMs | |
|--------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 70% Load | 50% Load | 70% Load | 50% Load | 70% Load | 50% Load | 70% Load | 50% Load | 70% Load | 50% Load |
| PW9135G5000-XL3UEU | 8 | 13 | 33 | 50 | 62 | 91 | 93 | 134 | 124 | 177 |
| PW9135G6000-XL3UEU | 7 | 10 | 27 | 40 | 51 | 74 | 76 | 110 | 101 | 146 |

* Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.



Eaton 9140 UPS

7.5 - 10 kVA



Advanced power protection for:
Wire closets, server rooms



Double conversion UPS

Highest power performance

- Double conversion topology provides the highest level of protection available by isolating the output power from all input anomalies.
- 9140 protects mission-critical rackmount applications from downtime, data loss/corruption, and process interruption and delivers efficient, reliable power protection in only 6U of rack space, including batteries.

Unmatched reliability

- ABM technology uses an innovative three-stage charging technique, that only recharges the battery when necessary, so the battery experiences less corrosion and service life is prolonged by up to 50%.
- Batteries can be hot-swapped without ever having to shut down connected equipment.
- Possibility to add more runtime at any time with up to four external hot-swappable battery modules to run systems for hours if necessary.
- An internal automatic bypass feature allows the 9140 to continuously provide power to critical equipment while the system is serviced – even when the electronics are removed. A manual bypass switch in the chassis eliminates transfer time and allow for module repair and replacement without shutting down the load.

Outstanding versatility

- All 9140 UPS models and corresponding EBMs come with pre-installed rackmount hardware for easy installation in standard equipment racks (compatible with seismic requirements).
- The 9140 conserves valuable rack space with up to 10 kVA of power in only 6U of height, including batteries.
- Modular lightweight design facilitates installation and improves service time.
- The UPS is blade servers compatible with standard IEC receptacles.
- The 9140 features both LEDs and an intuitive, multilingual LCD screen on the front of the unit. This relays more in-depth operational information, communicates specific alarms and predictive service needs, and can be used to program certain features.



1. Multilingual graphical LCD display
2. Panel for replacing batteries
3. 1 USB port + 1 serial port
4. 1 REPO connector
5. EBM battery unit connector
6. Hardwired output + 3xIEC 16A and 2xIEC 10A
7. Communication card slot



TECHNICAL SPECIFICATIONS

| Rating | 7,5 kVA | 10 kVA |
|------------------------------|--|---|
| Part number | 103005093-6591 | 103004728-6591 |
| Capacity (kVA/kW) | 7.5 / 6 | 10 / 8 |
| Dimensions HxWxD (mm) | 263x430x760 | 263x430x760 |
| Weight | | |
| UPS | 115 kg | 115 kg |
| EBM | 79 kg | 79 kg |
| Battery modules | 17 kg | 17 kg |
| Power module | 18 kg | 18 kg |
| Input connection | Hardwired | Hardwired |
| Output connection | Hardwired + 3xIEC320 16A & 2xIEC320 10A | Hardwired + 3xIEC320 16A & 2xIEC320 10A |
| Battery runtime | 65 minutes with 4 EBMs at full load | 45 minutes with 4 EBMs at full load |
| Operational | | |
| Nominal input voltage (Vac) | Single phase 200-208 V (for 200-208 V nominal output): 220-240 V Three phase 380 / 220 V, 400 / 230 V, 415 / 240 V | |
| Input voltage range | Single phase 160-253 V (for 200-208 nominal output); 174-288 V (for 220-240 V nominal output) Three phase 301-499 V / 174 -288 V | |
| Operating frequency | 50/60 Hz auto-sensing | |
| Input power factor | 0,99 | |
| Input current distortion | < 5% THD | |
| Nominal output voltage | 200 V / 208 V / 220 V / 230 V / 240 user selectable | |
| Output voltage regulation | ±2% static, ±10% dynamic | |
| Overload capacity | ±10% of 112 to 130% for 60 sec, transfer to bypass | |
| Permitted load power factors | 0,7 lag – 0,8 leading | |
| Efficiency | > 90% | |
| User interface | | |
| LCD display | Multilingual graphical LCD with blue backlight | |
| LED | 4 LED | |
| Standard communication ports | 1 x USB, 1 x RS232 serial, 1 x REPO | |
| Communication Slot | 1 x XSlot communication bay | |
| Power management software | Bundled software suite CD Eaton 9140 is HID-compliant | |
| Optional | Extended battery modules 3U EBM Slot connectivity: Web/SNMP, Modbus/Jbus, Relay, RS 232 cards | |
| Environmental | | |
| Operating temperature | 0°C to +40°C | |
| Storage temperature | -20°C to +50°C | |
| Altitude | Operating 3000 m, transit 15000 m | |
| Audible noise | < 55 dB(A) at 1,5 metres | |
| Certification | | |
| Markings | CE, GOST | |
| Safety | IEC/EN 62040-1, CE, UL, cULus, NOM, TUV | |
| EMC | IEC/EN 62040-2, CE, FCC, VCCI, C-tick | |



Eaton 9155 and 9355 UPS

8 - 15 kVA



Advanced power protection for:

- Banking
- Small server and computer rooms
- Healthcare
- Network communications
- Security systems
- Automation systems



Double conversion UPS

Premium power performance

- Double conversion topology provides the highest level of protection available by isolating the output power from all input anomalies.
- With a transformer-free design and sophisticated sensing and control circuitry the 9155/9355 delivers an efficiency of up to 92%.
- Active power factor correction (PFC) provides unbeatable 0,99 input power factor and less than 4,5% ITHD, thus eliminating interference with other critical equipment in the same electrical network and enhancing compatibility with generators.
- With 0.9 output power factor, UPS is optimized to protect modern IT equipment without need to oversize.

True reliability

- Hot Sync technology enables paralleling of two or more UPS modules to increase availability or add capacity. The technology enables load sharing without any communication line, thus eliminating single point of failure.
- ABM technology charges batteries only when necessary, reducing batteries corrosion and prolonging batteries service life by up to 50%.
- Internal batteries in all standard configurations provide an extended runtime with the smallest footprint.

Extensive configurability

- Further runtime extension is possible with external battery cabinets.
- A multilingual graphical LCD display makes possible to monitor the UPS status easily.
- The 9155/9355 can also be integrated into network management, industrial automation and building management systems.
- Bundled Eaton Software Suite provides an orderly network shutdown in an event of extended power outage.

Cost savings and sustainability

- The 9155/9355 features high up to 92% efficiency, thus reducing utility costs, extending battery runtimes and producing cooler operating conditions.
- Compact space efficient tower design offers smaller footprint enabling easy data centre space-planning and preserving valuable raised-floor real estate.
- Included internal batteries eliminate the need for costly and space-consuming external battery cabinets.
- A single technical platform used in Eaton's three-phase UPS products guarantee easy upgrades and similarity in service, thus lowering total cost of ownership.
- A range of service agreement options can be easily customized for customers' needs and budget.
- Eaton uses sustainable materials and highly efficient manufacturing technology, thus generating dramatic savings in carbon footprint as compared to competitive UPS systems.

Eaton 9155/9355 UPS 8-15 kVA

TECHNICAL SPECIFICATIONS

UPS output power rating (0,9 p.f.)

| | | | | |
|-----|-----|----|------|------|
| kVA | 8 | 10 | 12 | 15 |
| kW | 7,2 | 9 | 10,8 | 13,5 |

General

| | |
|---|--------------------------------------|
| Efficiency in double conversion mode (full load) | 92% |
| Efficiency in double conversion mode (half load) | 90% |
| Efficiency in high efficiency mode | up to 98% |
| Distributed parallelling with Hot Sync technology | 4 |
| Field upgradeable | yes |
| Inverter/rectifier topology | transformer-free IGBT with PWM |
| Audible noise | <50 dB |
| Altitude (max) | 1000 m without derating (max 2000 m) |

Input

| | |
|---------------------------------------|--|
| Input wiring | 1 ph or 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |
| Input voltage range | Low -20% at 100% load/-50% at 50% load without battery discharge; High +10%/max +20% |
| Input frequency range | 45-65 Hz |
| Input power factor | 0,99 |
| Input ITHD | less than 4,5% |
| Soft start capability | Yes |
| Internal backfeed protection | Yes |

Output

| | |
|---------------------------------------|--------------------------------------|
| Output wiring | 1 ph or 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |

| | |
|--------------------------------|---|
| Output UTHD | <3% (100% linear load); <5% (reference non linear load) |
| Output power factor | 0,9 (e.g. 9 kW at 10 kVA) |
| Permitted load power factor | 0,7 lagging - 0,8 leading |
| Overload on inverter | 10 min 100-110%; 1 min 110-125%; 5 sec 125-150%; 300 ms >150% |
| Overload when bypass available | 60 min 100-110%, 10 min 110-125%; 1 min >125-150% |

Battery

| | |
|-------------------------------------|---------------------------------------|
| Type | Maintenance free VRLA batteries, NiCd |
| Charging method | ABM technology or Float |
| Temperature compensation | Optional |
| Battery nominal voltage (lead-acid) | 384 V (32x12 V, 192 cells) |
| Charging current / Model | Default 3 A *Max 30 A |

*May be limited by maximum UPS input current rating

Accessories

Isolation transformer, long-life batteries, external battery cabinets, UPS Center (input, bypass, distribution), X-Slot connectivity (Web/SNMP, ModBus/Jbus, Relay, Hot Sync, ViewUPS-X remote display), Hot Sync parallel tie cabinet, integrated manual bypass, external maintenance bypass switch

Communications

| | |
|----------------------|----------------------|
| X-Slot | 2 communication bays |
| Serial ports | 1 available |
| Relay inputs/outputs | 2/1 programmable |

Compliance with standards

| | |
|-----------------------|--------------------------|
| Safety (CB certified) | IEC 62040-1, IEC 60950-1 |
| EMC | IEC 62040-2 |
| Performance | IEC 62040-3 |

Stand-alone UPS with 1-phase input

| Part number | Description | Rating | Back-up (pf. 0.7) | Dimensions (HxWxD) | Weight |
|-------------|---------------------|----------------|-------------------|--------------------|--------|
| 1022532 | 9155-8-S-10-32x7Ah | 8 kVA / 7.2 kW | 10 min | 817x305x702 mm | 155 kg |
| 1022533 | 9155-8-S-15-32x9Ah | 8 kVA / 7.2 kW | 15 min | 817x305x702 mm | 160 kg |
| 1022534 | 9155-8-S-28-64x7Ah | 8 kVA / 7.2 kW | 28 min | 1214x305x702 mm | 250 kg |
| 1022535 | 9155-8-S-33-64x9Ah | 8 kVA / 7.2 kW | 33 min | 1214x305x702 mm | 275 kg |
| 1022536 | 9155-10-S-10-32x9Ah | 10 kVA / 9 kW | 10 min | 817x305x702 mm | 160 kg |
| 1022537 | 9155-10-S-20-64x7Ah | 10 kVA / 9 kW | 20 min | 1214x305x702 mm | 250 kg |
| 1022538 | 9155-10-S-25-64x9Ah | 10 kVA / 9 kW | 25 min | 1214x305x702 mm | 275 kg |

Stand-alone UPS with 3-phase input

| Part number 9155/9355 | Description | Rating | Back-up (pf. 0.7) | Dimensions (HxWxD) | Weight |
|-----------------------|--------------------------|------------------|-------------------|--------------------|--------|
| 1022480 | 9155-8-N-10-32x7Ah | 8 kVA / 7.2 kW | 10 min | 817x305x702 mm | 155 kg |
| 1022481/1023411 | 9155/9355-8-N-15-32x9Ah | 8 kVA / 7.2 kW | 15 min | 817x305x702 mm | 160 kg |
| 1022482 | 9155-8-N-28-64x7Ah | 8 kVA / 7.2 kW | 28 min | 1214x305x702 mm | 250 kg |
| 1022483/1023412 | 9155/9355-8-N-33-64x9Ah | 8 kVA / 7.2 kW | 33 min | 1214x305x702 mm | 275 kg |
| 1022484/1023413 | 9155/9355-10-N-10-32x9Ah | 10 kVA / 9 kW | 10 min | 817x305x702 mm | 160 kg |
| 1022485 | 9155-10-N-20-64x7Ah | 10 kVA / 9 kW | 20 min | 1214x305x702 mm | 250 kg |
| 1022486/1023414 | 9155/9355-10-N-25-64x9Ah | 10 kVA / 9 kW | 25 min | 1214x305x702 mm | 275 kg |
| 1022487/1023415 | 9155/9355-12-N-8-32x9Ah | 12 kVA / 10.8 kW | 8 min | 817x305x702 mm | 160 kg |
| 1022488 | 9155-12-N-15-64x7Ah | 12 kVA / 10.8 kW | 15 min | 1214x305x702 mm | 250 kg |
| 1022489/1023416 | 9155/9355-12-N-20-64x9Ah | 12 kVA / 10.8 kW | 20 min | 1214x305x702 mm | 275 kg |
| 1022490/1023417 | 9155/9355-15-N-5-32x9Ah | 15 kVA / 13.5 kW | 5 min | 817x305x702 mm | 160 kg |
| 1022491 | 9155-15-N-10-64x7Ah | 15 kVA / 13.5 kW | 10 min | 1214x305x702 mm | 250 kg |
| 1022492/1023418 | 9155/9355-15-N-15-64x9Ah | 15 kVA / 13.5 kW | 15 min | 1214x305x702 mm | 275 kg |

External battery cabinets

| Part number | Description | Rating | Back-up (pf. 0.7) | Dimensions (HxWxD) | Weight |
|-------------|------------------|-----------|-------------------|--------------------|--------|
| 1022561 | 9X55-BAT5-64x7Ah | 2x32x7 Ah | See page 58 | 817x305x699 mm | 195 kg |
| 1022562 | 9X55-BAT5-96x7Ah | 3x32x7 Ah | | 1214x305x699 mm | 310 kg |

Eaton 9355 UPS

20 - 40 kVA



Advanced power protection for:

- Financial services
- Medium size servers and computers
- ICT
- Critical building infrastructure
- Industrial applications



Double conversion UPS

Premium power performance

- Double conversion topology provides the highest level of protection available by isolating the output power from all input anomalies.
- With a transformer-free design and sophisticated sensing and control circuitry the 9355 delivers an efficiency of up to 93%.
- Active power factor correction (PFC) provides unbeatable 0,99 input power factor and less than 4,5% input ITHD, thus enhancing compatibility with generators and eliminating interference with other critical equipment in the same network.
- The UPS enables optimal power protection for modern 0,9 p.f. rated IT equipment without the need to oversize.
- The 9355 design is also available with 1-phase output (9155) at 20-30kVA power ratings.

True reliability

- Hot Sync technology makes possible to parallel two or more UPSs to increase availability or add capacity. The technology enables load sharing without any communication line, thus eliminating single point of failure.
- ABM technology charges batteries only when necessary, preventing batteries corrosion and prolonging batteries service life by up to 50%.
- Internal batteries in all standard configurations support more runtime than comparable UPS.

Extensive configurability

- Configurable and multilingual LCD control panel with back light and graphical mimic screen monitors the UPS status easily.
- Connectivity options guarantee a smooth integration with various application systems requirements.
- Bundled with Eaton Software Suite the 9355 provides an orderly network shutdown in an event of extended power outage. If required, the 9355 can also be integrated to network management, industrial automation and building management systems.

Cost savings and sustainability

- The 9355 features high up to 93% efficiency, thus reducing utility costs, extending battery runtimes and producing cooler operating conditions.
- Compact space efficient tower design offers smaller footprint enabling easy data centre space-planning and preserving valuable raised-floor real estate.
- Internal batteries often eliminate the need for costly and space-consuming external battery cabinets.
- A single technical platform used in Eaton's three-phase products guarantee easy upgrades and similarity in service, thus lowering total cost of ownership.
- A range of service agreement options can be easily customized for customers needs and budget.
- Eaton uses sustainable materials and highly efficient manufacturing technology, thus generating dramatic savings in carbon footprint as compared to competitive UPS systems.

Eaton 9355 UPS 20 - 40 kVA

TECHNICAL SPECIFICATIONS

UPS output power rating (0,9 p.f.)

| | | | |
|-----|----|----|----|
| kVA | 20 | 30 | 40 |
| kW | 18 | 27 | 36 |

General

| | |
|---|--------------------------------------|
| Efficiency in double conversion mode (full load) | 93% |
| Efficiency in double conversion mode (half load) | 91% |
| Distributed parallelling with Hot Sync technology | 4 |
| Field upgradeable | yes |
| Inverter/rectifier topology | transformer-free IGBT with PWM |
| Audible noise | <50 dB |
| Altitude (max) | 1000 m without derating (max 2000 m) |

Input

| | |
|---------------------------------------|--|
| Input wiring | 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |
| Input voltage range | Low -20% at 100% load/-50% at 50% load without battery discharge; High +10%/max +20% |
| Input frequency range | 45-65 Hz |
| Input power factor | 0,99 |
| Input ITHD | less than 4,5% |
| Soft start capability | Yes |
| Internal backfeed protection | Yes |

Output

| | |
|---------------------------------------|---|
| Output wiring | 1 ph or 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |
| Output UTHD | <3% (100% linear load); <5% (reference non linear load) |

| | |
|--------------------------------|--|
| Output power factor | 0,9 (e.g. 27 kW at 30 kVA) |
| Permitted load power factor | 0,7 lagging - 0,8 leading |
| Overload on inverter | 10 min 100-110%; 1 min 110-125%; 5 sec 125-150%; 300 ms >150% |
| Overload when bypass available | 60 min 100-110%, 10 min 110-125%; 1 min >125-150% |

Battery

| | |
|-------------------------------------|---------------------------------------|
| Type | Maintenance free VRLA batteries, NiCd |
| Charging method | ABM technology or Float |
| Temperature compensation | Optional |
| Battery nominal voltage (lead-acid) | 432 V (36x12 V, 216 cells) |
| Charging current / Model | Default 3 A *Max 60 A |

*May be limited by maximum UPS input current rating

Accessories

Isolation transformer, long-life batteries, external battery cabinets, X-Slot connectivity (Web/SNMP, ModBus/Jbus, Relay, Hot Sync, ViewUPS-X remote display), Hot Sync parallel tie cabinet, integrated manual bypass, external maintenance bypass switch

Communications

| | |
|----------------------|----------------------|
| X-Slot | 2 communication bays |
| Serial ports | 1 available |
| Relay inputs/outputs | 2/1 programmable |

Compliance with standards

| | |
|-----------------------|--------------------------|
| Safety (CB certified) | IEC 62040-1, IEC 60950-1 |
| EMC | IEC 62040-2 |
| Performance | IEC 62040-3 |

Standard UPS with 3-phase input

| Part number 9355 | Description | Rating | Runtime (pf 0.7) | Dimensions (HxWxD) | Weight |
|------------------|-----------------------------|----------------|------------------|--------------------|--------|
| 1025061/1026598 | 9355/9155-20-N-5-1x9Ah-MBS | 20 kVA / 18 kW | 5 min | 1684x494x762 mm | 300 kg |
| 1025062/1026599 | 9355/9155-20-N-13-2x9Ah-MBS | 20 kVA / 18 kW | 13 min | 1684x494x762 mm | 400 kg |
| 1025063/1026600 | 9355/9155-20-N-22-3x9Ah-MBS | 20 kVA / 18 kW | 22 min | 1684x494x762 mm | 500 kg |
| 1025064/1026601 | 9355/9155-20-N-31-4x9Ah-MBS | 20 kVA / 18 kW | 31 min | 1684x494x762 mm | 600 kg |
| 1025065/1026602 | 9355/9155-30-N-7-2x9Ah-MBS | 30 kVA / 27 kW | 7 min | 1684x494x762 mm | 400 kg |
| 1025066/1026603 | 9355/9155-30-N-13-3x9Ah-MBS | 30 kVA / 27 kW | 12 min | 1684x494x762 mm | 500 kg |
| 1025067/1026604 | 9355/9155-30-N-20-4x9Ah-MBS | 30 kVA / 27 kW | 20 min | 1684x494x762 mm | 600 kg |
| 1025795 | 9355-40-N-8-3x9Ah-MBS | 40 kVA / 36 kW | 8 min | 1684x494x762 mm | 517 kg |
| 1025796 | 9355-40-N-12-4x9Ah-MBS | 40 kVA / 36 kW | 12 min | 1684x494x762 mm | 617 kg |

External battery cabinets 9155/9355

| Part number | Description | Rating | Runtime | Dimensions (HxWxD) | Weight |
|-------------|--------------------------|------------|-------------|--------------------|--------|
| 1025169 | 9355-BAT-1x24Ah (30 kVA) | 1x36x24 Ah | See page 59 | 1684x494x758 mm | 510 kg |
| 1025170 | 9355-BAT-2x24Ah (30 kVA) | 2x36x24 Ah | See page 59 | 1684x494x758 mm | 870 kg |

9355 20-40 kVA runtimes

Runtimes for UPS with internal batteries ...p.f. 0.7 (typical IT server/computer load)

| Battery | Qty | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | kVA |
|-----------|--------|-----|----|----|----|----|----|----|----|-----|
| 7 Ah 12 V | 1 x 36 | 24 | 8 | 5 | - | - | - | - | - | min |
| 9 Ah 12 V | 1 x 36 | 30 | 12 | 7 | 5 | - | - | - | - | min |
| 7 Ah 12 V | 2 x 36 | 60 | 24 | 14 | 10 | 6 | - | - | - | min |
| 9 Ah 12 V | 2 x 36 | 70 | 28 | 18 | 13 | 10 | 7 | 5 | - | min |
| 7 Ah 12 V | 3 x 36 | 103 | 41 | 26 | 17 | 12 | 10 | 7 | 5 | min |
| 9 Ah 12 V | 3 x 36 | 115 | 46 | 31 | 22 | 16 | 13 | 10 | 8 | min |
| 7 Ah 12 V | 4 x 36 | 152 | 55 | 40 | 26 | 18 | 15 | 11 | 9 | min |
| 9 Ah 12 V | 4 x 36 | 158 | 63 | 42 | 31 | 23 | 20 | 15 | 12 | min |

Eaton BladeUPS

12 – 60 kW



An Eaton Green Solution

Due to outstanding green performance, Eaton BladeUPS has earned the "An Eaton Green Solution"™ label

Advanced power protection for:

- Small, medium and large data centres
- Blade servers
- Network environment
- PBX and VoIP equipment
- Networking applications: IPTV, security
- Storage devices: RAID, SAN



High Efficiency UPS for Data Centres

Premium power performance

- BladeUPS provides scalable, flexible backup power optimized for high-density blade servers and IT equipment.
- A single module of BladeUPS provides 12 kW of power in only 6U of standard rack space, including batteries.
- A scalable solution that delivers up to 60 kW of redundant power in a single rack enclosure.
- BladeUPS delivers an industry-leading 98% efficiency, resulting in cooler operating conditions and less heat dissipation.

True reliability

- Hot Sync technology makes it possible to parallel up to six UPS modules for extra capacity or redundancy.
- ABM technology charges batteries only with necessary, preventing battery corrosion and prolonging battery service life by up to 50%.
- Replacing hot-swappable batteries and electronic modules can be done without interrupting the power, which dramatically improves the availability of the protected IT equipment.

Extensive configurability

- BladeUPS is extremely flexible and supports a variety of system architectures to fit to your specific requirements and desired levels of redundancy. BladeUPS also accommodates growth through its scaleable building-block architecture.
- Due to the low heat dissipation, air conditioning requirement reduce by up to a third and BladeUPS can be located close to IT equipment.
- BladeUPS automatically detects parallel modules and self-configures for parallel operation.
- A module working in a parallel configuration can be separated and easily re-deployed as a stand-alone module.
- Each BladeUPS can be configured with its own external battery backup.
- BladeUPS is a scalable UPS with its own power distribution, courtesy of the Rack Power Module. The 3U RPM delivers single-phase power and can be deployed in the same rack as the UPS and IT equipment.
- BladeUPS can be monitored over LAN or the Internet.

Cost savings and sustainability

- A high level of efficiency leads to utility cost saving, with a 60 kW N+1 solution paying for itself over a 5 year period through energy and cooling savings alone.
- The small footprint of BladeUPS allows extra space for IT equipment in the rack and data centre.
- Eaton uses sustainable materials and highly efficient manufacturing technology to dramatically reduce the carbon footprint when compared to other UPS systems on the market.

TECHNICAL SPECIFICATIONS

General

| | |
|---------------------------------|---|
| Power Rating | 12 kW per UPS module |
| Efficiency | Up to 98,6 per cent |
| Heat Dissipation | 371W/1266 BTU/hr at 100% rated load |
| Cooling | Fan cooled, temperature microprocessor monitored; front air entry, rear exhaust |
| Audible Noise, Normal Operation | <60 dBA at 1 meter |
| Altitude Before Derating | 1000 meters (3300 ft ASL) |

Input

| | |
|--------------------------|---|
| Input Voltage | 400 Vac |
| Voltage Range | 400V: 311 to 519 Vac, phase to phase |
| Frequency Range | 50 or 60 Hz, ±5 Hz |
| Input Current Distortion | <5% with IT loads (PFC power supplies) |
| Input Power Factor | >0.99 with IT loads (PFC power supplies) |
| Inrush Current | Load dependent |
| Input Requirements | Three-phase, four-wire + ground |
| Bypass Source | Same as input (single feed) |
| Generator Compatibility | Fast sync slew rate for generator synchronisation |

Output

| | |
|---------------------------------|--|
| Rated Output Voltage | 400V: 180 to 240 Vac, Ph to N |
| Output Configuration | Three-phase, four-wire + ground |
| Output Frequency (nominal) | 50 or 60 Hz auto-detection on startup |
| Frequency Regulation | 0.1 Hz free running |
| Load Power Factor Range | Lagging: 0.7 Leading: 0.9 |
| Total Output Voltage Distortion | <3% with IT loads (PFC power supplies) <5% non-linear or non-PFC power supplies |

Battery

| | |
|-----------------------------|--|
| Battery Type | VRLA - AGM |
| Battery Runtime (Internal) | 13 minutes at 50 per cent load 4.7 minutes at 100 per cent load |
| Battery String Voltage | 240 Vdc |
| Battery Test | Automatic battery test standard (remote scheduling capable) Manual battery test from front display |
| Battery Recharge Profile | ABM three-stage charging technology |
| Battery Cut-off Voltage | Variable from 1.67 VPC at <5 min. runtime |
| Battery Low Condition | Announced with alarm |
| Extended Battery Capability | Yes, add up to four additional 3U battery enclosures (~34 min at 100 per cent load, >1 hour at 50 per cent load) |

Physical

| | |
|--|-------------------------|
| Dimensions (HxWxD) UPS | 261 (6U) x 442 x 660 mm |
| Note: Total Chassis Weight without batteries or electronics | 46 kg |
| Total Chassis Weight with batteries or electronics | 140 kg |
| Total UPS Weight without Batteries | 61 kg |
| Total UPS Weight with Batteries | 140 kg |
| EBM Weight | 77 kg |

Communications and User Interface

| | |
|------------------------|--|
| Software Compatibility | UPS ships with Software Suite CD |
| X-Slot Bays | Two available for the cards listed below |
| Control Panel LCD | Two lines by 20 characters Four menu-driven interface buttons Four status at a glance LEDs |
| Multi-language | English standard; 20 languages available |
| Configuration Changes | User capable, firmware auto configures |
| Dry Contact Inputs | Two, user-configurable |
| Dry Contact Outputs | One, user-configurable |

Service

| | |
|--------------------------|---|
| Installation | User capable, located in the IT racks |
| Preventative Maintenance | User capable, optional factory service available |
| Corrective Maintenance | User capable, optional factory service available |
| Serviceability Features | Hot-swappable batteries Hot-swappable electronics module Automated internal maintenance bypass Auto-configure firmware Flash firmware upgradeable |

Certifications

| | |
|----------------------------|---|
| EMI | IEC 62040 |
| Surge Protection | ANSI C62.41, Cat B-3 |
| Hazardous Materials (RoHS) | EU Directive 2002/95/EC Category 3 (4 of 5) |

Warranty

| | |
|-----------------|---------------------------------|
| Standard | 12 months |
| Warranty Repair | Factory depot repair or replace |

Options and Accessories

| | |
|---------------------------------------|--|
| Detachable input cord | |
| Detachable input/output cord assembly | |
| Detachable paralleling cord assembly | |
| Extended Battery Modules (EBMs) | |
| 3U output sub-distribution module | |
| 0U to 3U rack power strips | |
| 60 kW BladeUPS Parallel Bar | |
| Four-post rail kit | |

Optional X-Slot Communication Cards

| | |
|---|---|
| Application | Card |
| Web SNMP | ConnectUPS-X Web/SNMP Card |
| Environment Monitoring | EMP Environmental Monitoring Probe (requires Web/SNMP card) |
| IBM eServer™ (i5™, iSeries™, or AS/400), industrial | Relay Interface Card |
| Parallel | Hot Sync Card |
| Remote LCD Display | ViewUPS-X |

Recommended ePDU:

| | |
|-----------------|---|
| Y032440CD100000 | RPM - Rack Power Module (BladeUPS in, 12xC13 + 6xC19 out) 20 ft lead |
| PW107BA0UC08 | ePDU - Basic (0U, Dual 16A C20 in, 24xC13+ 8xC19 out) use in addition to RPM |
| PW107MI0UC08 | ePDU - IP Monitored (0U, Dual 16A C20 in, 24xC13+ 8xC19 out) use in addition to RPM |

Complete power quality solutions for server rooms and data centres

Today's data centre environment demands a power quality solution that is both flexible and adaptable, without compromising the reliability of your power chain. That's why Eaton has a driving focus on power quality solutions for enterprise and business IT systems, from network closets to large data centres.

Saving your business time and money

Eaton offers off-the-shelf, complete solutions for your IT environment. Each package incorporates all necessary components under the one part number. This eliminates the need for complicated configuration work as well as time-consuming and costly orders

Benefits of Eaton solutions

- Choose from six pre-packaged, off-the-shelf solutions which include all necessary components for your IT environment.
- Fast and easy purchasing – only one part number is needed for the entire package, which eliminates time-consuming and costly additional orders for missing or additional parts.
- A flexible solution which adjusts to your changing environment.
- Plug-and-play solutions save you valuable time by eliminating the need for complicated configuration work.

for missing and additional parts. The packages are designed so that all components fit together and provide the best power solution for your needs. Furthermore, being plug-and-play solutions Eaton packages are also easy to install and use.

Series XS, S and M

3000 to 5000 VA power

Solution XS

Eaton pre-packaged solution XS provides you with 3000VA of power in one enclosure and still leaves 40U free for your IT equipment. Solution XS includes a line-interactive Eaton 5130 UPS with web and SNMP capable network card, an environmental monitoring probe (EMP) and 0U Basic ePDU. The 42U 2000 x 600 x 1000mm rack has a split rear door with castors, sidewalls and 42U cable tray pair for cable management.

Solution S

Eaton pre-packaged solution S provides you with 3000VA of power in one enclosure and still leaves 40U free for your IT equipment. Solution S includes a double conversion Eaton 9130 UPS with web and SNMP capable network card, an environmental monitoring probe (EMP) and 0U Basic ePDU. The 42U 2000 x 600 x 1000mm rack has a split rear door with castors, sidewalls and 42U cable tray pair for cable management.

Solution M

Eaton pre-packaged solution M provides you with 5000VA of power in one enclosure and still leaves 39U free for your IT equipment. Solution M includes a double conversion Eaton 9135 UPS with web and SNMP capable network card, an environmental monitoring probe (EMP) and 0U Basic ePDU. The 42U 2000 x 600 x 1000mm rack has a split rear door with castors, sidewalls and 42U cable tray pair for cable management.

Eaton data centre packages XS, S and M for

- small to medium-sized businesses
- network servers with limited space
- rack-mounted servers
- and network storage systems

XS 1029412

3kVA, one enclosure, 40U free for IT equipment

Eaton 5130i 3000-XL2U

Rack enclosure 2000 x 600 x 1000mm, split rear door, castors, sidewalls

42U Cable tray, pair plus depth stays for mounting

EMP Environmental Monitoring Probe for Web/SNMP card

ePDU Basic 0U, 16 Amp C20 input plug – 3m lead, output style C13 x 20 + C19x4

ConnectUPS-MS Network Management Card

S 1029413

3kVA, one enclosure, 40U free for IT equipment

Eaton 9130i 3000R-XL2U

Rack enclosure 2000 x 600 x 1000mm, split rear door, castors, sidewalls

42U Cable tray, pair plus depth stays for mounting

EMP Environmental Monitoring Probe for Web/SNMP card

ePDU Basic 0U, 16 Amp C20 input plug – 3m lead, output style C13 x 20 + C19x4

ConnectUPS-MS Network Management Card

M 1029414

5kVA, one enclosure, 39U free for IT equipment.

Eaton 9135 5000 230V 3U

Rack enclosure 2000 x 600 x 1000mm, split rear door, castors, sidewalls

42U Cable tray, pair plus depth stays for mounting

EMP Environmental Monitoring Probe for Web/SNMP card

ePDU Basic 0U, 16 Amp C20 input plug – 3m lead, output style C13 x 20 + C19x4

ConnectUPS-MS Network Management Card

Intelligent Power®Manager software available for monitoring and managing multiple ePDU and UPS systems over an IP network.

Series L, XL and XXL

12 - 60 kW power N+1

Solution L

Eaton pre-packaged solution L provides you with 12kW of power in one enclosure and still leaves 36U free for your IT equipment. Solution L includes an Eaton BladeUPS with integrated ConnectUPS web/SNMP card, an environmental monitoring probe (EMP), 0U monitored ePDU. Solution L also includes a 42U rack enclosure and cable tray pair for proper cable management.

Solution XL

Eaton pre-packaged solution XL provides you with 12 kW N+1, in 2 enclosures and still leaves 63U free for your IT equipment. Solution XL includes two Eaton BladeUPS, 12kW each. A ConnectUPS web/SNMP card, an environmental monitoring probe (EMP), two 0U monitored ePDU and a rack power module (RPM) to deliver the power from the BladeUPS to the data equipment. Solution XL includes two 42U rack enclosures and cable tray pair for proper cable management.

Solution XXL

Eaton pre-packaged solution XXL provides you with 60kW N+1 power in six enclosures and still leaves 195U free for your IT equipment. Solution XXL includes six Eaton BladeUPS, 12kW each. A ConnectUPS web/SNMP card, an environmental monitoring probe (EMP), 10 0U monitored ePDU units and five rack power modules (RPM) to deliver the power from the BladeUPS to the data equipment. For this system we use six 42U rack enclosures with cable tray pair for proper cable management.



Eaton data centre packages L, XL and XXL for

- small and medium-sized data centres
- network environment
- and storage applications

L 1029269

12kW, one enclosure, 36U free for IT equipment

BladeUPS Single Unit 12kW 400V (IEC 309-32A 5W in, 5W + RPM out) SNMP

Rack enclosure 2000 x 600 x 1000mm, split rear door, with castors, sidewalls

42U Cable tray, pair plus depth stays for mounting

ePDU – IP monitored 0U, 32A 3Ph input plug – 3M lead, output style C13x12, C19x12

EMP – Environmental Monitoring Probe

XL 1029270

12kW N+1, two enclosures, 63U free for IT equipment

BladeUPS 12kW 400V (parallel cord for BladeBar in/out, RPM out)

42U rack enclosure with BladeBar and Bottom WW, pre-configured

Rack enclosure 2000 x 600 x 1000mm, split rear door, with castors, without sidewalls

RPM – Rack Power Module (BladeUPS in, 12xC13 + 6xC19 out) 10ft lead

2 pcs of 42U Cable tray, pair plus depth stays for mounting

EMP – Environmental Monitoring Probe

ConnectUPS-X Web/SNMP/xHub card

Two pcs of ePDU – IP monitored (0U, Dual 16A C20 in, 24xC13+ 8xC19 out) used in addition to RPM

TS Baying clamp, external

XXL 1029271

60kW N+1, six enclosures, 195U free for IT equipment

6 pcs of BladeUPS 12kW 400V (parallel cord for BladeBar in/out, RPM out)

42U rack enclosure with BladeBar and Bottom WW fitted, pre-configured

5 pcs of rack enclosure 2000 x 600 x 1000mm, split rear door, with castors, without sidewalls

2 pcs of RPM – Rack Power Module (BladeUPS in, 12xC13 + 6xC19 out) 10ft lead

3 pcs of RPM – Rack Power Module (BladeUPS in, 12xC13 + 6xC19 out) 20ft lead

6 pcs of 42U Cable tray, pair plus depth stays for mounting

EMP – Environmental Monitoring Probe

ConnectUPS-X Web/SNMP/xHub card

10 pcs of ePDU – IP Monitored (0U, Dual 16A C20 in, 24xC13+ 8xC19 out) used in addition to RPM

5 pcs of TS Baying clamp, external

Intelligent Power®Manager software available for monitoring and managing multiple ePDU and UPS systems over an IP network.

Eaton 9390 UPS

40 - 160 kVA



Advanced power protection for:

- Data centers
- Financial services
- Building management
- Telecommunications
- Industrial automation equipment
- Healthcare



Double conversion UPS

Premium power performance

- Double conversion provides the highest level of protection available by isolating the output power from all input anomalies.
- With a transformer-free design and sophisticated sensing and control circuitry the 9390 UPS delivers an efficiency of up to 94% in double conversion.
- Enhanced efficiency of up to 99% can be achieved with unique Energy Saver System (ESS).
- Active power factor correction (PFC) provides unbeatable 0,99 input power factor and less than 4,5 percent ITHD, thus eliminating interference with other critical equipment in the same network and enhancing compatibility with generators.
- The UPS is optimized for protecting modern 0,9 p.f. rated IT equipment without the need to oversize.

True reliability

- Hot Sync technology makes possible to parallel up to seven UPSs to increase availability or add capacity. The technology enables load sharing without any communication line, thus eliminating single point of failure.
- ABM technology charges batteries only when necessary, preventing batteries corrosion and prolonging batteries service life by up to 50%.
- Increased overall reliability of the UPS due to the high level of efficiency.

Extensive configurability

- The 9390 offers small footprint compared to competitive UPS offerings. Cabling can enter the UPS from either the top or bottom of the cabinet to provide easier and flexible installation.
- A multilingual graphical LCD display makes possible to monitor the UPS status easily.
- Wide software and connectivity options provide monitoring, management and shutdown capabilities over the network.
- Connectivity options are available to suit nearly any communication requirements, from standard serial communications to secure remote monitoring over the Web.

Cost savings and sustainability

- High level of system efficiency leads to utility cost saving, extension of battery run times and cooler operating conditions within the UPS, which extends the life of components.
- As the compact 9390 can be installed against back and side walls, customers have more location options, installation is faster and easier, deployment costs are lower and more valuable data centre space can be saved for future needs.
- A single technical platform used in Eaton's three-phase UPS products guarantee easy upgrades, similarity or service trainings and documentation, thus lowering total cost of ownership.
- A range of service agreement options can be easily customized for customers needs and budget.
- High operating efficiency and the use of sustainable materials generate dramatic savings in carbon footprint as compared to competitive UPS systems.

Eaton 9390 UPS 40-160 kVA

TECHNICAL SPECIFICATIONS

| UPS output power rating (0,9 p.f.) | | | | | | |
|---|---|----|----|-----|-----|-----|
| kVA | 40 | 60 | 80 | 100 | 120 | 160 |
| kW | 36 | 54 | 72 | 90 | 108 | 144 |
| General | | | | | | |
| Efficiency in double conversion mode (full load) | 94% | | | | | |
| Efficiency in double conversion mode (half load) | 92,5% | | | | | |
| Efficiency in Energy Saver System (ESS) | up to 99% | | | | | |
| Distributed parallelling with Hot Sync technology | 6 + 1 | | | | | |
| Field upgradeable | yes | | | | | |
| Inverter/rectifier topology | transformer-free IGBT with PWM | | | | | |
| Audible noise | <65 dB | | | | | |
| Altitude (max) | 1000 m without derating (max 2000 m) | | | | | |
| Input | | | | | | |
| Input wiring | 3 ph + N + PE | | | | | |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz | | | | | |
| Input voltage range | Low -20% at 100% load/-50% at 50%load without battery discharge; High +10%/max +20% | | | | | |
| Input frequency range | 45-65 Hz | | | | | |
| Input power factor | 0,99 | | | | | |
| Input ITHD | less than 4,5% | | | | | |
| Soft start capability | Yes | | | | | |
| Internal backfeed protection | Yes | | | | | |
| Output | | | | | | |
| Output wiring | 3 ph + N + PE | | | | | |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz | | | | | |

| | |
|--------------------------------|--|
| Output UTHD | <3% (100% linear load); <5% (reference non linear load) |
| Output power factor | 0,9 (e.g. 72 kW at 80 kVA) |
| Permitted load power factor | 0,7 lagging - 0,8 leading |
| Overload on inverter | 10 min 100-110%; 30 sec 110-125%; 10 sec 125-150%; 300 ms >150% |
| Overload when bypass available | Continuous 100-110%, 10 min 110-150%, 5 ms 1000% Note! Bypass fuses may limit the over-load capability |

| Battery | |
|-------------------------------------|---------------------------------------|
| Type | Maintenance free VRLA batteries, NiCd |
| Charging method | ABM technology or Float |
| Temperature compensation | Optional |
| Battery nominal voltage (lead-acid) | 480 V (40 x 12 V, 240 cells) |
| Charging current / Model | 40 60 80 100 120 160 |
| Default A | 10 20 20 30 30 40 |
| Max* A | 20 40 40 60 60 80 |

*May be limited by maximum UPS input current rating

| Accessories | |
|--|--|
| External battery cabinets with long-life batteries, X-Slot connectivity (Web/SNMP, ModBus/Jbus, Relay, Hot Sync, ViewUPS-X remote display), Hot Sync parallel tie cabinet, integrated manual bypass up to 80 kVA, external maintenance bypass switch | |

| Communications | |
|----------------------|----------------------|
| X-Slot | 4 communication bays |
| Serial ports | 1 available |
| Relay inputs/outputs | 6/3 programmable |

| Compliance with standards | |
|---------------------------|--------------------------|
| Safety (CB certified) | IEC 62040-1, IEC 60950-1 |
| EMC | IEC 62040-2 |
| Performance | IEC 62040-3 |

Standard UPS

| Part number | Description | Rating | Dimensions (HxWxD) | Weight |
|-------------|----------------|------------------|--------------------|--------|
| 1028510 | 9390-40-N-4x0 | 40 kVA / 36 kW | 1879x519x808 mm | 257 kg |
| 1028511 | 9390-60-U-4x0 | 60 kVA / 54 kW | 1879x519x808 mm | 313 kg |
| 1028512 | 9390-80-N-4x0 | 80 kVA / 72 kW | 1879x519x804 mm | 313 kg |
| 1028513 | 9390-100-U-4x0 | 100 kVA / 90 kW | 1879x944x804 mm | 430 kg |
| 1028514 | 9390-120-N-4x0 | 120 kVA / 108 kW | 1879x944x804 mm | 430 kg |
| 1028515 | 9390-120-U-4x0 | 120 kVA / 108 kW | 1879x944x804 mm | 530 kg |
| 1028516 | 9390-160-N-4x0 | 160 kVA / 144 kW | 1879x944x804 mm | 530 kg |

Standard external battery

| | | | | |
|---------|-----------------------------|-------|------------------|---------|
| 1025570 | 9390-BAT10-S-40x38Ah (250A) | 38 Ah | 1877x575x773 mm | 700 kg |
| 1025572 | 9390-BAT10-S-200 (250A) | 200 W | 1877x575x773 mm | 1176 kg |
| 1026327 | 9390-BAT10-S-205 (250A) | 205 W | 1879x1125x808 mm | 1270 kg |
| 1025467 | 9390-BAT10-280 (250A) | 280 W | 1879x1125x808 mm | 1444 kg |
| 1025468 | 9390-BAT10-500 (250A) | 500 W | 1879x1125x808 mm | 2188 kg |
| 1025469 | 9390-BAT10-280 (400A) | 280 W | 1879x1125x808 mm | 1444 kg |
| 1025470 | 9390-BAT10-330 (400A) | 330 W | 1879x1125x808 mm | 1625 kg |
| 1025471 | 9390-BAT10-500 (400A) | 500 W | 1879x1125x808 mm | 2188 kg |

Battery racks

| | | | | |
|---------|-----------------------|-------|------------------|---------|
| 1026273 | 9390-RACK10-1x40x200W | 200 W | 1714x566x1246 mm | 985 kg |
| 1026274 | 9390-RACK10-1x40x280W | 280 W | 1726x690x1246 mm | 1228 kg |
| 1026275 | 9390-RACK10-1x40x330W | 330 W | 1726x690x1546 mm | 1431 kg |
| 1026276 | 9390-RACK10-1x40x390W | 390 W | 1729x690x1546 mm | 1587 kg |
| 1026277 | 9390-RACK10-1x40x500W | 500 W | 1789x690x1546 mm | 1995 kg |
| 1026278 | 9390-RACK10-2x40x500W | 500 W | 1714x866x1856 mm | 3879 kg |
| 1026279 | 9390-RACK10-3x40x500W | 500 W | 1789x690x3666 mm | 5865 kg |

See runtime page 61

Standard accessories

| | | | | |
|---------|---|-------|-----------------|--------|
| 1021887 | External Bypass Switch 60-80 kVA (wall-mount) | wall | 840x380x130 mm | 17 kg |
| 1021888 | External Bypass Switch 120 kVA (wall-mount) | wall | 1040x560x130 mm | 25 kg |
| 1024626 | External Bypass Switch 160 kVA (wall-mount) | wall | 1040x560x130 mm | 25 kg |
| 1025476 | SPM-60-2 | wall | 700x500x250 mm | 50 kg |
| 1023540 | SPM-80-4 | floor | 1530x520x788 mm | 230 kg |
| 1024687 | 9390 Tie Cabinet 3x120 kVA | floor | 1879x519x808 mm | 217 kg |
| 1024506 | 9390 Tie Cabinet 3x160 kVA | floor | 1879x519x808 mm | 217 kg |

Eaton 9395 UPS

225 - 1100 kVA



An Eaton Green Solution

Due to outstanding green performance, the 9395 has earned the "An Eaton Green Solution"™ label

Advanced power protection for:

- Big data centers and server farms
- Financial services
- Building management
- Telecommunications
- Hospitals



Double conversion UPS

Premium power performance

- Double conversion provides the highest level of protection available by isolating the output power from all input anomalies.
- With a transformer-free design and sophisticated sensing and control circuitry the 9395 UPS delivers an efficiency of up to 94,5%.
- Maximised UPS energy efficiencies with Energy Advantage Architecture (EAA): Variable Module Management System (VMMS) optimises system efficiency at low load levels and Energy Saver System (ESS) allows dramatic increase in UPS efficiency without sacrificing load protection.
- Active power factor correction (PFC) provides 0,99 input power factor and below 3-5% ITHD (depends on utility UTHD), thus eliminating interference with other critical equipment in the same network and enhancing compatibility with generators.
- The UPS is optimized for protecting modern 0,9 p.f. rated IT equipment without the need to oversize.

True reliability

- Hot Sync technology makes possible to parallel up to 4 -6 UPSs to increase availability or add capacity. The technology enables load sharing without any communication line, thus eliminating single point of failure.
- The multi-module 9395 can be configured with inherent redundancy – anytime the load is below 50%, the system becomes automatically redundant.
- ABM technology charges batteries only when necessary, preventing batteries corrosion and prolonging batteries service life by up to 50%.

Extensive configurability

- The 9395 is a completely integrated system that incorporates multiple power modules and system switchgear on factory pre-wired bases.
- A multilingual graphical LCD display makes possible to monitor the UPS status easily.
- Wide software and connectivity options provide monitoring, management and shutdown capabilities over network.

Cost savings and sustainability

- High system efficiency reduces utility cost, extends battery run times and ensures cooler operating conditions.
- Compared to traditional UPS design, a transformer-free UPS is only 50% the weight and occupies just 60% the footprint, thus reducing impact on shipping.
- The new design requires 50-80% less energy in manufacturing due to less energy needed for testing thanks to Easy Capacity Test.
- Pre-wired configuration reduces cabling busbar costs and installation time. Front accessible design minimizes installation costs and saves valuable data centre space.
- A single technical platform used in Eaton's three-phase UPS products guarantees easy upgrades and similarity in service, thus lowering total cost of ownership.
- More than 90% of the materials can be recycled, further decreasing end-of-life impact.

TECHNICAL SPECIFICATIONS

UPS output power rating (0,9 p.f.)

| | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|------|
| kVA | 225 | 275 | 450 | 550 | 675 | 825 | 900 | 1100 |
| kW | 204 | 250 | 408 | 500 | 612 | 750 | 816 | 1000 |

General

| | |
|---|---|
| Efficiency in double conversion mode (full load) | >94% |
| Efficiency in double conversion mode (half load) | >93% |
| VMMS (double conversion) | significantly increased efficiency at low loads |
| Efficiency in Energy Saver System (ESS) | up to 99% |
| Distributed parallelling with Hot Sync technology | 5 + 1 |
| Internal N+1 redundancy capable | in 550 : 275 kVA in 825 : 550 kVA in 1100 : 825 kVA |
| Field upgradeable | yes |
| Inverter/rectifier topology | transformer-free IGBT with PWM |
| Audible noise | <76 dB; <81 dB (825 and 1100 kVA) |
| Altitude (max) | 1000 m without derating (max 2000 m) |

Input

| | |
|---------------------------------------|---|
| Input wiring | 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |
| Input voltage range | +15% / -15%, +10% /-10% for bypass |
| Input frequency range | 45-65 Hz |
| Input power factor | 0,99 |
| Input ITHD | < 3-5% on nominal load, depending on the utility UTHD |
| Soft start capability | Yes |
| Internal backfeed protection | Yes, standard |

Output

| | |
|---------------------------------------|--|
| Output wiring | 3 ph + N + PE |
| Nominal voltage rating (configurable) | 220/380, 230/400, 240/415 V 50/60 Hz |
| Output UTHD | <3% (100% linear load); <5% (reference non linear load) |
| Output power factor | 0,9 (e.g. 250 kW at 275 kVA) |
| Permitted load power factor | 0,7 lagging - 0,8 leading |
| Overload on inverter | 10 min 100-110%; 30 sec 110-125%; 10 sec 125-150%; 300 ms >150% |

Overload when bypass available Continuous <115%, 20 ms 1000% Note! Bypass fuses may limit the overload capability

Battery

| | | | | |
|-------------------------------------|------------------------------|-----|-----|------|
| Type | VRLA, AGM, Gel, Wet Cell | | | |
| Charging method | ABM technology or Float | | | |
| Temperature compensation | with EMP | | | |
| Battery nominal voltage (lead-acid) | 480 V (40 x 12 V, 240 cells) | | | |
| Charging current / Model | 275 | 550 | 825 | 1100 |
| Default A | 38 | 76 | 114 | 152 |
| Max* A | 83 | 166 | 249 | 332 |

*Limited by maximum UPS input current rating

Dimensions and weights

| | | |
|--------------------------------------|------------------------------|---------|
| 225 kVA, 275 kVA | 1350 x 880 x 1880 mm (wxdxh) | 830 kg |
| 225, 275 kVA redundant | 1890 x 880 x 1880 mm | 1430 kg |
| 450, 500, 550 kVA | 1890 x 880 x 1880 mm | 1430 kg |
| 450, 550 kVA redundant | 2630 x 880 x 1880 mm | 2030 kg |
| Field upgrade module, 225 or 275 kVA | 740 x 880 x 1880 mm | 600 kg |
| 675, 825 kVA | 3710 x 880 x 1880 mm | 2520 kg |
| 675, 825 kVA + 1 redundant | 4450 x 880 x 1880 mm | 3120 kg |
| 1100 kVA | 4450 x 880 x 1880 mm | 3120 kg |

Accessories

External battery cabinets with long-life batteries, flywheels on request, X-Slot connectivity (Web/SNMP, ModBus/Jbus, Relay, Hot Sync, ViewUPS-X remote display), integrated manual bypass for 225-550 kVA

Communications

| | |
|----------------------|----------------------|
| X-Slot | 4 communication bays |
| Serial ports | 1 available |
| Relay inputs/outputs | 5/1 programmable |

Compliance with standards

| | |
|-----------------------|--------------------------|
| Safety (CB certified) | IEC 62040-1, IEC 60950-1 |
| EMC | IEC 62040-2 |
| Performance | IEC 62040-3 |

Maximise and manage your rack power

Two key trends have emerged in the data centre: the demand from today's IT equipment for more power, and the increasing cost of that power. Couple these with the worldwide growth in demand for data centres and IT servers, and it is clear that data centre managers are facing growing pressure to manage and optimise their available power for growth, at the same time as managing the increasing associated costs.

To help them achieve this, they need an accurate view of the power and energy being consumed in the data centre – from row to rack, and right down to the individual server level. Only then can they truly understand the power usage and optimise the available power.

Intelligent Power with Eaton ePDUs

Enclosure Power Distribution Units

Eaton® ePDUs are enclosure-based Power Distribution Units, designed to provide reliable, cost-effective power distribution together with highly accurate monitoring and control for IT equipment in the data centre.

Eaton ePDUs enable the data centre manager to:

- Optimise and utilise all available power
- Control the operational expenditure involved in running a data centre
- Effectively manage and plan for new and existing infrastructure

Intelligent Power Distribution

Maximise and manage available power

Choose your required level of monitoring and control – with true V, W, A and kWh consumption to enable you to track, trend, analyse and utilise all your available power. Then choose your level of control, you can remotely switch outlets for full control and remote reboot, or combine outlet monitoring with switching to fully manage the rack power.



Intelligent Power Monitoring

Manage your power consumption

Eaton ePDUs provide a true picture of your V, W, A and kWhr consumption (1% accuracy over 2A) to enable you to utilise all your available power. This is achieved through Intelligent Power Monitoring: accurately monitoring the level of power being drawn by the rack to the breaker branch or outlet group, right down to the individual server level.

Intelligent Power distribution and monitoring through Eaton ePDUs help to ensure you have the power you need, where you need it.

Easy analysis and tracking enables you to see what your servers are doing, where the power is being used and how much excess power is available.

With Intelligent Power Monitoring and Management providing key knowledge and understanding of the power available, you not only know if you are reaching your capacity, but can plan for growth – knowing whether you are able to add more servers or capacity and, if so, where.

Intelligent Power Control

Complete control of your power distribution

Eaton ePDUs give you complete control of your power distribution and consumption.

Remote and secure individual outlet switching allows for control over individual outlets as well as branch circuits, together with sequencing outlets with programmable delays. It is also possible to reboot outlets for remote restart of servers and related equipment.

Administrators can enable or disable switching, and allow users to control outlet groups – giving complete confidence and security in the system.

Full integration with Intelligent Power® Manager software enables viewing of all ePDUs and UPSs through a single interface, as well as providing access to alerts and warning thresholds through a simple and easy-to-use interface.

Intelligent Power for the Data Centre

Maximum availability

Eaton ePDUs are designed and built specifically for the data centre environment – where reliability is the primary concern – with very high quality components and state-of-the-art technology and circuitry.

With a rugged aluminium or steel chassis (depending on model), they fit any standard 42U IT rack and include Eaton's patented mounting system, for complete flexibility in fitting. Optional cable retention is also available for complete security. Eaton ePDUs are available in 0U vertical and 1U or 2U horizontal mounting.

A single Eaton ePDU will deliver up to 22kW into your rack, from 10A single phase to 32A 3-phase. The full range of ePDU technologies is also covered: Managed, Advanced Monitored, Switched, In-Line Monitored, Monitored, Metered and Basic.

Eaton ePDUs are designed to be easy to set up and monitor either directly, through your current SNMP management software, or through the Intelligent Power Manager software.

Designed for the Data Centre

All ePDUs are made of rugged aluminium or steel chassis and incorporate fully shrouded circuit breakers and switches. Eaton ePDUs are designed for the Data Centre – to be highly reliable, to consistently provide power and designed to last.





Managed ePDUs

Managed ePDUs offer data centre managers maximum functionality and flexibility, with complete understanding and control of data centre power distribution. Capabilities include:

Advanced Monitored ePDUs

Advanced Monitored ePDUs give the data centre manager the detailed accurate information and understanding needed to run the data centre efficiently and effectively.

Switched ePDUs

Switched ePDUs give control to the data centre manager. They provide the ability to remotely shut off or restart equipment ensuring that it starts up in the correct sequence with the correct delays – together with overall monitoring for load balancing.

Monitoring

Highly accurate individual outlet, branch circuit, and full ePDU monitoring for V, W, A and kWhrs (1% accuracy above 2A). Also temperature and humidity monitoring in the rack via optional sensors.

Monitoring

Highly accurate individual outlet, branch circuit and full ePDU monitoring for V, W, A and kWhrs (1% accuracy above 2A). Also temperature and humidity monitoring in the rack via optional sensors.

Monitoring

Highly accurate monitoring of the ePDU as a whole for V, W, A and kWhr (1% accuracy above 2A). Also temperature and humidity monitoring in the rack via optional sensors. Monitor over Ethernet or via Advanced LCD screen on the unit.

Switching

Individual outlet, sequencing of outlets with delays or cycling, enables remote reboot of equipment.

Switching

—

Switching

On, off and reboot control of individual outlets, together with cycling and sequencing of outlets and branch circuits.

Control

Monitor and control remotely over Ethernet or via Advanced LCD screen on the unit. Communication protocols include HTTP/HTTPS, DHCP, SNMP v1 and v3, SNTP, SMTP, Telnet, IPv4 and IPv6.

Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack, Eaton Managed ePDUs provide reliable, consistent power distribution at temperatures of up to 50°C.

Control

Monitor and measure key properties and alerts remotely over Ethernet or via Advanced LCD screen on the unit. Communication protocols include HTTP/HTTPS, DHCP, SNMP v1 and v3, SNTP, SMTP, Telnet, IPv4 and IPv6.

Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack, Eaton Advanced Monitored ePDUs provide reliable, consistent power distribution at temperatures of up to 50°C.

Control

Control via Ethernet, with communication protocols including HTTP / HTTPS, DHCP, SNMP v1 and v3, SNTP, SMTP, Telnet, IPv4 and IPv6.

Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack, Eaton switched ePDUs provide reliable, consistent power distribution at temperatures of up to 50°C.



| Monitored ePDUs | In-Line Monitored ePDUs | Metered ePDUs | Basic ePDUs |
|---|---|---|--|
| <p>Monitored ePDUs accurately monitor the current draw of the ePDU and branch circuit, to allow for provisioning and load balancing of servers, and to ensure current draw is not approaching breaker limits.</p> | <p>In-line Monitored ePDUs are designed for new data centres, or for retrofitting to upgrade an existing infrastructure which lacks power monitoring. In-line Monitored ePDUs provide accurate remote monitoring solutions for both A and B feeds, with single and dual-feed capability</p> | <p>Metered ePDUs are part of Eaton's Custom offering, allowing you to tailor a solution to fit your exact needs. They offer a large digital ammeter for easy start-up and provisioning of servers.</p> | <p>Basic ePDUs are designed for reliable and cost-effective power distribution. They have the reliability, form factor and outlet choices to meet your needs.</p> <p>Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack.</p> |
| Monitoring | Monitoring | Monitoring | Monitoring |
| <p>Monitor current on input and each branch circuit to ensure accurate load balancing.</p> | <p>A fuseless and breakerless design allows current monitoring in-line, with no break to upgrade existing basic infrastructure.</p> | <p>Locally monitor current at the input of the ePDU, via an LED interface, to enable load balancing and segmentation. Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack.</p> | <p>—</p> |
| Switching | Switching | Switching | Switching |
| <p>—</p> | <p>—</p> | <p>—</p> | <p>—</p> |
| Control | Control | Control | Control |
| <p>Monitor and measure remotely over Ethernet or via the LED interface on the unit, which can automatically scroll through branch circuits. Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack.</p> | <p>Monitor and measure remotely over Ethernet or via the LED interface on the unit. Includes Eaton's patented flexible mounting system, which ensures ePDUs will fit in any standard 42U IT rack. Retro-fit to existing equipment with A and B feed, while live and without downtime.</p> | <p>—</p> | <p>—</p> |

Standard and Custom ePDUs

Choose the solution that works for you, from either our Standard or Custom range of ePDUs. Both ranges are designed for the specific data centre application, with an emphasis on safety, quality and reliability.

Standard ePDU Range

Eaton's Standard ePDU range features our top sellers, designed to meet the most common requirements of today's data centre. Standard units offer either IEC or national outlets for the most popular models.

The range includes:

- Managed units for individual outlet monitoring together with individual outlet switching and sequencing
- Advanced Monitored units for individual outlet and branch circuit level monitoring
- Switched units for individual outlet switching and sequencing, and monitoring of the unit as a whole
- Monitored units for branch circuit and rack-level monitoring
- In-Line Monitored units for retrofitting or upgrading existing basic power distribution
- Basic units to provide reliable and flexible basic power distribution

Custom ePDU Range

A Custom ePDU opens up the broadest portfolio in the industry to you, across all power densities and technologies, to satisfy the needs of the most demanding data centre.

Custom ePDUs allow you to specify your power density and monitoring requirements, together with inputs and outputs, and are available in four different categories: Basic, Metered, Monitored and 1st Generation Managed (V, W, A monitoring securely via Ethernet, with a local LED display).

You can select from UK, Schuko, French and IEC (C13 and C19) output sockets, and local (UK or Schuko), EN 60309, IEC (C14 and C20) or unterminated cords, for termination directly to the output terminals of the UPS.

The ePDU portfolio includes an extensive range of vertical Zero U products that do not occupy server space in racks, as well as 1U and 2U formats. Environmental monitoring and cable retention options are also available.

Visit www.eaton.com/ePDU for more information



Supervise your data centre power distribution with Intelligent Power Manager

Eaton ePDUs are designed to be easy to monitor, either through your existing SNMP software or through Eaton's Intelligent Power Manager software.

Intelligent Power Manager

Intelligent Power Manager (IPM) software offers complete monitoring of UPSs and ePDUs over an IP network, from a single interface using a standard web browser. This simplifies the process of management of high volumes of information.

Intelligent Power Manager has productivity tools to help in configuring and managing large numbers of ePDUs and UPS. Mass configuration and mass upgrade functions help keep equipment firmware up to date and reduces both effort and likelihood of error in maintenance work.

Intelligent Power Manager integrates seamlessly with leading virtual machine management systems like VMware vCenter, Microsoft SCVMM and Citrix XenCenter and can even trigger virtual machine migration to other physical servers or sites if there is a fear of power loss, resulting in zero downtime.

Intelligent Power Manager is free of charge for up to 10 monitored devices.

To download Intelligent Power Manager, visit www.eaton.eu/intelligentpower



Eaton ePDU Technical Specifications

| Technology | Part Number | Form | Rating (A) | Input Type | Outlet type: Qty | Breakers | Product Dimensions WxHxD (mm) | Weight (kg) |
|-------------------------------|--------------|--------|------------|-----------------|------------------|---------------|-------------------------------|-------------|
| Managed IEC | | | | | | | | |
| Managed IEC | eMAA10 | OU | 10 | C14 | C13, 16 | | 55x1092.2x65 * | 7,2 |
| Managed IEC | eMAA11 | OU | 16 | IEC60309 16A | C13, 20: C19,4 | | 55x1727.2x65 * | 6,64 |
| Managed IEC | eMAA12 | OU | 16 | C20 | C13, 20: C19,4 | | 55x1524x65 * | 6,54 |
| Managed IEC | eMAA13 | OU | 32 | IEC60309 32A | C13, 20: C19,4 | 2 single pole | 55x1524x65 * | 8,17 |
| Managed IEC | eMAA14 | OU | 16A 3P | IEC60309 16A 3P | C13, 21: C19,3 | | 55x1524x65 * | 7,01 |
| Advanced Monitored IEC | | | | | | | | |
| Adv. Monitored IEC | eAMA06 | OU | 10 | C14 | C13, 16 | | 55x1092.2x65 * | 4,84 |
| Adv. Monitored IEC | eAMA07 | OU | 16 | IEC60309 16A | C13, 20: C19,4 | | 55x1524x65 * | 9,5 |
| Adv. Monitored IEC | eAMA08 | OU | 16 | C20 | C13, 20: C19,4 | | 55x1524x65 * | 6,24 |
| Adv. Monitored IEC | eAMA09 | OU | 32 | IEC60309 32A | C13, 20: C19,4 | 2 single pole | 55x1727.2x65 * | 7,83 |
| Switched IEC | | | | | | | | |
| Switched IEC | eSWA01 | OU | 10 | C14 | C13, 16 | | 55x1092.2x65* | 7,2 |
| Switched IEC | eSWA02 | OU | 16 | IEC 60309 16A | C13, 20: C19,4 | | 55x1524x65 * | 6,54 |
| Switched IEC | eSWA03 | OU | 16 | C20 | C13, 20: C19,4 | | 55x1524x65 * | 6,49 |
| Switched IEC | eSWA04 | OU | 32 | IEC60309 32A | C13, 20: C19,4 | 2 single pole | 55x1727.2x65 * | 8,1 |
| Switched IEC | eSWA05 | OU | 16A 3P | IEC60309 16A 3P | C13, 21: C19,3 | | 55x1524x65 * | 6,92 |
| Monitored IEC | | | | | | | | |
| Monitored IEC | PW102MI0UB95 | OU | 10 | C14 | C13, 16 | | 57x837.5x52.3 | 7 |
| Monitored IEC | PW104MI0UB96 | OU | 16 | IEC60309 16A | C13, 20: C19, 4 | | 57x1097x52.3 | 7 |
| Monitored IEC | PW104MI0UB97 | OU | 16 | C20 | C13, 20: C19, 4 | | 57x1097x52.3 | 7 |
| Monitored IEC | PW107MI0UB88 | OU | 32 | IEC60309 32A | C13, 20: C19, 4 | 2 single pole | 57x1429x90.8 | 7 |
| Monitored IEC | PW312MI0UC07 | OU | 16A 3P | IEC60309 16A 3P | C13, 36: C19, 6 | | 57x1682x52.3 | 10 |
| Monitored IEC | PW107MI0UC60 | OU | 32 | IEC60309 32A | C13, 36: C19, 6 | 2 single pole | 57x1800x52.3 | 9 |
| Monitored IEC | PW104MI0UD02 | OU | 16 | C20 | C13, 18: C19, 2 | | 57x970x52.3 | 7 |
| Monitored IEC | PW104MI0UD03 | OU | 16 | IEC60309 16A | C13, 18: C19, 2 | | 57x970x52.3 | 7 |
| In-Line Monitored IEC | | | | | | | | |
| In-Line Monitored IEC | PW104IM0UC05 | OU 19" | 16 | IEC 16A | IEC 16A | | 57x436x52.3 | 6,5 |
| In-Line Monitored IEC | PW107IM0UC04 | OU 19" | 32 | IEC 32A | IEC 32A | | 57x436x52.3 | 6,5 |
| In-Line Monitored IEC | PW107IM0UB81 | OU 19" | 2x16 | 2x IEC 16A | 2x IEC 16A | | 57x436x75 | 6,5 |
| In-Line Monitored IEC | PW115MI0UB80 | OU 19" | 2x32 | 2x IEC 32A | 2x IEC 32A | | 57x436x75 | 6,5 |
| In-Line Monitored IEC | PW322IM0UC17 | OU 19" | 32 3P | IEC 32A 3P | IEC 32A 3P | | 57x436x75 | 6,5 |
| In-Line Monitored IEC | PW344IM0UC18 | OU | 2x32A 3P | 2x IEC 32A 3P | 2x IEC 32A 3P | | 57x572.7x75 | 6,5 |
| Basic IEC | | | | | | | | |
| Basic IEC | ePBZ03 | OU | 16 | C20 | C13, 16 | | 47.5x635x59.6 | 1,5 |
| Basic IEC | ePBZ05 | OU | 10 | C14 | C13, 16 | | 47.5x635x59.6 | 1,4 |
| Basic IEC | ePBZ32 | OU | 16 | IEC60309 16A | C13, 20: C19, 4 | | 44.5x768.4x50 | 1,7 |
| Basic IEC | ePBZ33 | OU | 16 | C20 | C13, 20: C19, 4 | | 44.5x768.4x50 | 1,6 |
| Basic IEC | ePBZ31 | OU | 32 | IEC60309 32A | C13, 20: C19, 4 | 2 single pole | 44.5x920.8x50 | 2,7 |
| Basic IEC | PW312BA0UC07 | OU | 16A 3P | IEC60309 16A 3P | C13, 36: C19, 6 | | 57x1400x52.3 | 10 |
| Basic IEC | PW322BA0UC56 | OU | 32A 3P | IEC60309 32A 3P | C13, 3: C19, 6 | 6 single pole | 57x1200x115.8 | 10 |
| Basic IEC | PW322BA0UC57 | OU | 32A 3P | IEC60309 32A 3P | C19, 6 | 6 single pole | 57x1135x115.8 | 10 |
| Basic IEC | ePBZ06 | 1U | 16 | C20 | C13,10: C19,2 | | 43.4x439x58.5 | 1,6 |
| Basic IEC | ePBZ04 | 1U | 16 | C20 | C13,12 | | 43.4x439x58.5 | 1,6 |
| Basic IEC | ePBZ01 | OU | 10 | C14 | C13, 8 | | 43.4x439x58.5 | 1,4 |
| Basic IEC | ePBZ02 | OU | 10 | C14 | C13, 12 | | 43.4x439x58.5 | 1,4 |

*max depth at com box 113

| Technology | Part Number | Form | Rating (A) | Input Type | Outlet type: Qty | Breakers | Product Dimensions WxHxD (mm) | Weight (kg) |
|------------------------|--------------|---------|------------|--------------|--------------------|---------------|-------------------------------|-------------|
| Schuko Socket | | | | | | | | |
| Basic Schuko | ePBZ25 | OU, 19" | 16 | Schuko | schuko, 4 | | 44.5x444.2x50 | 1,4 |
| Basic Schuko | ePBZ26 | OU, 19" | 16 | Schuko | schuko, 8 | | 44.5x444.2x50 | 1,5 |
| Basic Schuko | ePBZ27 | OU | 16 | Schuko | schuko, 12 | | 44.5x666.8x50 | 2 |
| Monitored Schuko | PW104MIOUC72 | OU | 16 | Schuko | schuko, 16 | | 57x1328x52.3 | 8 |
| Monitored Schuko | PW102MIOUC73 | OU | 10 | C14 | schuko, 16 | | 57x1328x52.3 | 8 |
| Monitored Schuko | PW104MIOUC74 | OU | 16 | C20 | schuko, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Monitored Schuko | PW107MIOUC75 | OU | 32 | IEC60309 32A | schuko, 20: C19, 4 | 2 single pole | 57x1860x115.8 | 10 |
| Monitored Schuko | PW104MIOUC76 | OU | 16 | IEC60309 16A | schuko, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Managed 1st Gen Schuko | PW104MAOUC77 | OU | 16 | Schuko | schuko, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen Schuko | PW102MAOUC78 | OU | 10 | C14 | schuko, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen Schuko | PW104MAOUC79 | OU | 16 | C20 | schuko, 16: C19, 4 | | 57x1695x75 | 10 |
| Managed 1st Gen Schuko | PW107MAOUC80 | OU | 32 | IEC60309 32A | schuko, 16: C19, 4 | 2 single pole | 57x1840x115.8 | 10 |
| Managed 1st Gen Schuko | PW104MAOUC81 | OU | 16 | IEC60309 16A | schuko, 16: C19, 4 | | 57x1695x75 | 10 |
| French Socket | | | | | | | | |
| Basic French | ePBZ28 | OU, 19" | 16 | FR | FR, 4 | | 44.5x444.2x50 | 1,4 |
| Basic French | ePBZ29 | OU, 19" | 16 | FR | FR, 8 | | 44.5x444.2x50 | 1,5 |
| Basic French | ePBZ30 | OU | 16 | FR | FR, 12 | | 44.5x666.8x50 | 2 |
| Monitored French | PW104MIOUC82 | OU | 16 | FR | FR, 16 | | 57x1328x52.3 | 8 |
| Monitored French | PW102MIOUC83 | OU | 10 | C14 | FR, 16 | | 57x1328x52.3 | 8 |
| Monitored French | PW104MIOUC84 | OU | 16 | C20 | FR, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Monitored French | PW107MIOUC85 | OU | 32 | IEC60309 32A | FR, 20: C19, 4 | 2 single pole | 57x1860x115.8 | 10 |
| Monitored French | PW104MIOUC86 | OU | 16 | IEC60309 16A | FR, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Managed 1st Gen French | PW104MAOUC87 | OU | 16 | FR | FR, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen French | PW102MAOUC88 | OU | 10 | C14 | FR, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen French | PW104MAOUC89 | OU | 16 | C20 | FR, 16: C19, 4 | | 57x1695x75 | 10 |
| Managed 1st Gen French | PW107MAOUC90 | OU | 32 | IEC60309 32A | FR, 16: C19, 4 | 2 single pole | 57x1840x115.8 | 10 |
| Managed 1st Gen French | PW104MAOUC91 | OU | 16 | IEC60309 16A | FR, 16: C19, 4 | | 57x1695x75 | 10 |
| UK Socket | | | | | | | | |
| Basic UK | ePBZ20 | OU, 19" | 13 | UK | UK, 4 | | 54.5x444.2x46.5 | 1,4 |
| Basic UK | ePBZ21 | OU, 19" | 13 | UK | UK, 6 | | 54.5x444.2x46.5 | 1,5 |
| Basic UK | ePBZ22 | OU | 13 | UK | UK, 8 | | 54.5x590.6x46.5 | 1,9 |
| Basic UK | ePBZ23 | OU | 13 | UK | UK, 10 | | 54.5x717.6x46.5 | 2 |
| Basic UK | ePBZ24 | OU | 13 | UK | UK, 12 | | 54.5x844.6x46.5 | 2,2 |
| Monitored UK | PW103MIOUC62 | OU | 13 | UK | UK, 16 | | 57x1328x52.3 | 8 |
| Monitored UK | PW102MIOUC63 | OU | 10 | C14 | UK, 16 | | 57x1328x52.3 | 8 |
| Monitored UK | PW104MIOUC64 | OU | 16 | C20 | UK, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Monitored UK | PW107MIOUC65 | OU | 32 | IEC60309 32A | UK, 20: C19, 4 | 2 single pole | 57x1860x115.8 | 10 |
| Monitored UK | PW104MIOUC66 | OU | 16 | IEC60309 16A | UK, 20: C19, 4 | | 57x1850x52.3 | 8 |
| Managed 1st Gen UK | PW103MAOUC67 | OU | 13 | UK | UK, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen UK | PW102MAOUC68 | OU | 10 | C14 | UK, 16 | | 57x1425x75 | 10 |
| Managed 1st Gen UK | PW104MAOUC69 | OU | 16 | C20 | UK, 16: C19, 4 | | 57x1695x75 | 10 |
| Managed 1st Gen UK | PW107MAOUC70 | OU | 32 | IEC60309 32A | UK, 16: C19, 4 | 2 single pole | 57x1840x115.8 | 10 |
| Managed 1st Gen UK | PW104MAOUC71 | OU | 16 | IEC60309 16A | UK, 16: C19, 4 | | 57x1695x75 | 10 |

Not on the list? If you require something different, please contact your local Eaton sales office for a custom quote – we have thousands of ePDU designs already engineered and ready for production.

Eaton Enclosures



Superior rack enclosures for IT equipment

IT availability and reliability are critical issues in today's demanding environments, so it is important to ensure stable conditions for your server and software systems.

Eaton introduces a range of enclosures and accessories for your network closets, computer rooms and data centres.

Designed specifically for IT applications, this 42U x 600 mm (w) x 1000 mm (d) modern enclosure offers strength, stability and a vendor-neutral environment to house IT equipment.

The Eaton Enclosure allows for ultimate buying flexibility to create additional space, and the 16-fold unique frame design delivers the highest dimensional stability and load bearing capability. The enclosure is complemented with a range of cable management, cooling and power distribution accessories to enable you to tailor your enclosures to your specific application.

Features

- Designed specifically for IT applications
- Universal server platform (EIA 310-D)
- Full line of accessories
- Excellent heat dissipation
- Strong frame structure

Reliable Power distribution for:

- Data centres
- MDC/IDC
- Wiring closets
- Office environments
- Central offices
- Co-location and application environments



Eaton Enclosures

Specifications

- Frame system – multi-fold steel frame design for strength and rigidity
- No horizontal or vertical supports, keeping entire structure open for equipment and cable management
- Perforated roof with four 114 mm holes with grommets for overhead cable management
- Torsion-free structure
- Multiple internal surfaces and mounting points
- Maximum internal volume for footprint
- External access to all installation points for doors and walls
- Maximum load bearing capacity – 907 kg

External Surfaces – Doors and Walls

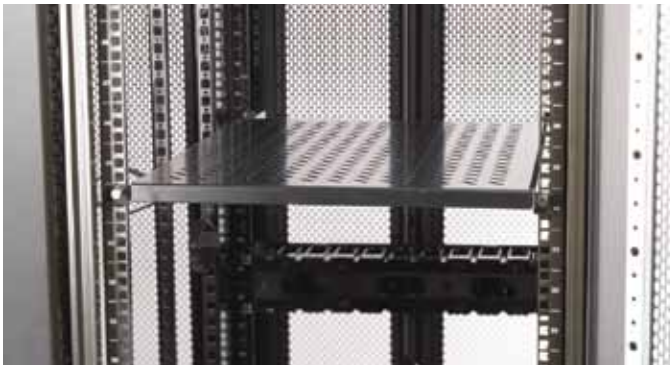
- Doors can be easily removed or reversed
- Sidewalls can be screwed on or locked in place
- Internal door hinge and lock points offer maximum security
- Door stiffener stabilizes door and provides additional mounting surfaces
- Maximum perforated door area meets or exceeds server manufacturer specifications for air flow
- Ground studs on all surfaces
- External surfaces do not affect load bearing capacity – same ratings with or without side walls
- Door handle provides customised locking solutions and simple ID tag capability
- Split rear doors to maximise floor space availability

Vertical Mounting Rails

- Designed to meet EIA-310-D standards
- Fully depth-adjustable to maintain load capacity regardless of rail positioning
- Floating isolation system – vertical rails are not secured to frame members or lateral support channels – can be adjusted independently
- “Z”-shaped, multi-fold profile offers high load-bearing capacity and multiple mounting surfaces
- “U” markings on front and rear near surfaces of each rail for ease of installation

Key Accessories

- Sidewalls - for security and thermal control
- Baying kits - for universal flexibility in joining enclosures together
- Shelves – (482 mm)
68 kg – 113 kg capacities
- Casters - for ease of movement on flat surfaces
- Tool-less cable management hardware reduces installation time and costs
- Bolt-down kits - for securing cabinets in place
- Tool-less blanking panels - to control airflow and improve cooling efficiency
- Plinths, roof fans and pull out stabilisers
- Compliment your Eaton rack enclosure with Eaton Enclosure Power Distribution Units - ePDUs
- For a full list of accessories and ePDUs please speak with your local Eaton representative



| Description | Dimensions mm | Weight kg | Shipping Dimensions mm | Shipping Weight kg | Part Number |
|------------------------|---------------|-----------|------------------------|--------------------|-------------|
| No Sides or Casters | 2000x600x1000 | 99 | 2160x800x1200 | 116 | 1052734 |
| With Sides, no Casters | 2000x600x1000 | 116 | 2160x800x1200 | 133 | 1052735 |
| No Sides, with Casters | 2000x600x1000 | 104 | 2160x800x1200 | 121 | 1052736 |
| With Sides and Casters | 2000x600x1000 | 121 | 2160x800x1200 | 138 | 1052737 |

Intelligent Power Software

Intelligent Power® Software is a suite of productivity tools for power management from Eaton®. It greatly simplifies the supervision of power conditions and devices in today's enterprise environment, scaling effortlessly from local area networks with a few UPSs and ePDUs to the most critical virtualised data centres.

Administrators will value the many automatic functions of Intelligent Power Software. Installation requires just a few clicks and a couple of minutes; once the software starts, it will automatically discover manageable equipment.

Intelligent Power Software architecture makes it very flexible. Completely network-based communications make the server part very suitable for virtualisation, and the web interface allows access from any device with a browser, anywhere in the network. The Web 2.0-compliant dynamic interface presents database contents in text, graphs and colours, highlighting the essential points.

The software can take automatic action as well. Events can be set to trigger email sending, notifications and command execution. This way alarms with exact data reach the right people in seconds, giving maximum time for action to prevent downtime, reduce mean time to repair and minimise the impact.

Intelligent Power Software incorporates two important applications that ensure system uptime and data integrity: Intelligent Power Manager and Intelligent Power Protector.

Virtualisation

Virtualisation is driving the deployment of many new applications and data centre demands. It changes the way IT facilities are operated, bringing substantial savings and increasing availability and flexibility.

Managing the power infrastructure within a virtual platform is vital for increased uptime and reliability of those applications. To facilitate the management of power devices, the Intelligent Power Manager plugs into leading virtual machine management systems, including VMware® vCenter™, Citrix, Microsoft SCVMM™ and XenCenter™, and integrates power management functions to these systems so that all UPSs and ePDUs in the virtual network can be viewed within the same application, together with network, physical server and storage information. In case of a local power failure, it can also trigger vCenter's vMotion™, SCVMM's Live Migration and XenCenter's XenMove™ to transparently move virtual machines from a server affected by a power interruption to an available server on the network, ensuring data integrity and enabling zero downtime.

If controlled graceful shutdown of hypervisors and their guests is sufficient in case of a prolonged power outage, Intelligent Power Protector is ideal for the task. IPP invokes shutdown or hibernation of virtual machines, signals the hypervisor to shut down and powers off the physical server. It supports VMware, Hyper-V, Xen and KVM platforms.

Intelligent Power Software snapshot

- Intelligent Power Manager for monitoring and managing power equipment in IT environments
- Intelligent Power Protector for graceful shutdown of operating systems
- Intuitive, Web 2.0-based user interface
- Compatible with Eaton and other manufacturers' UPSs as well as Eaton's ePDU products and environmental sensors
- Reduces total cost of ownership for the whole monitoring system

Benefits for virtualised environments

- IPM integration with VMware's vCenter, Citrix XenCenter and Microsoft's SCVMM streamlines daily management work and increases productivity.
- View critical power information on UPS, ePDUs and environmental sensors from the vCenter dashboard
- Integrate power alarms to vCenter alarm handling and event logging
- Instantly access critical information such as UPS battery status, load levels and alarms
- IPM can also be configured to trigger vCenter's vMotion, XenMove and SCVMM's Live Migration to transparently move virtual machines from a server affected by a power interruption to an available server on the network, ensuring data integrity and enabling zero downtime.
- Intelligent Power Protector software can perform an automatic orderly shutdown of VMware, Hyper-V, Xen and KVM hypervisors and their guest operating systems in case of a prolonged power failure that threatens to exceed battery backup time.



| Key Feature | Benefit |
|--------------------|--|
| Browser Based | IE 6, 7 and 8; Firefox 2 and 3; Safari; Chrome. The system can be installed locally, or on a main server and browsed to. |
| Auto Discovery | Fast installation - automatically detect devices on your network. |
| Security | Multiple password protected access levels and support for secure communications. |
| Remote access | Interface is web based which enables easy remote access through any device with a browser. |
| Customisable views | Lets users select the most relevant data for fast viewing and sorting on the interface. |

Intelligent Power Manager

Intelligent Power Manager is a productivity tool for administrators of several power devices and shutdown applications. It delivers the big picture and highlights key factors by concentrating information from multiple sources and displaying it in a single view. It also centralises alarm propagation making sure that important events are brought to those who need to know.

Intelligent Power Manager simplifies many routine maintenance tasks, including its own updates. It has an automatic update function which will notify the operator of available upgrades, download and install them. In addition to that, it also checks if there are new versions of shutdown software. Mass upgrade and configuration of cards and applications saves a lot of valuable operator time and reduces the chance of human error.

Intelligent Power Manager manages up to 10 devices at no charge.

Simply purchase a full license and enter the corresponding license key to raise this limit and enable management of 100 or more devices.

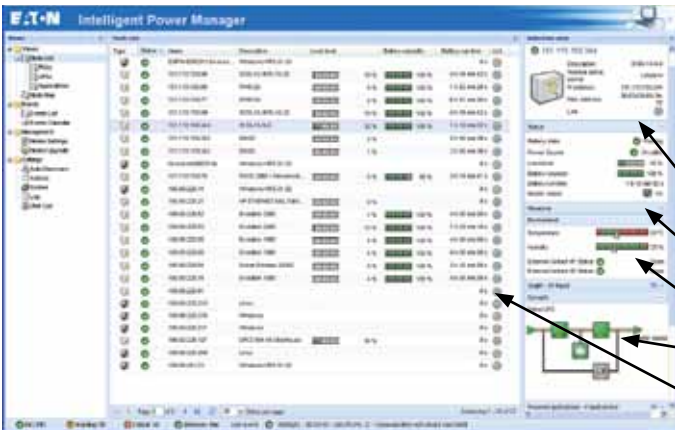
Features:

- Easily monitor hundreds of power and environmental devices
- User-definable tree structure enables grouping, access and management of multiple devices in several locations
- Minimises the effort required in power management system maintenance through mass configuration and firmware management
- Manages all Intelligent Power software instances in the network



Global view

Intelligent Power Manager scales easily from a local area network to a global view, keeping an eye on power conditions and equipment status. In addition to the default maps, it's possible to upload more maps, floor plans and other images. There can be separate views for multiple geographical areas and buildings.



Main list view

With Intelligent Power Manager list view, the key operational parameters of multiple devices can be seen at a glance. Users can create their own views and apply several different filters, such as location, equipment type, function and so forth. Activating an entry provides more detailed data in the information panes:

- Identification of the device, including equipment type, serial number and user-defined information
- Operational status
- Readings from optional environmental probe
- Synoptic view of power flow
- For each node, there is a hyperlink to the web interface of that device

Graphing tools

List and map views give an excellent real-time snapshot of a large number of devices, but very often time series data is needed for analysis, planning and problem mitigation. Intelligent Power Software has powerful graphing tools which help in visualising large amounts of data stored in its database. The user can choose which data is graphed and which timescales are used. Exact values are displayed when the pointer is moved over the graph area.

Ordering information

Intelligent Power Manager manages up to 10 devices at no charge. In order to raise this limit and enable management of 100 or more devices you need to purchase a full license and enter the corresponding license key.

| Intelligent Power Manager | |
|--|--|
| Base license (up to 10 devices) | Available on the CD bundled with each UPS or free of charge from the web: www.eaton.com/powerquality |
| Silver license (up to 100 devices) | 66 925 |
| Gold license (unlimited number of devices) | 66 926 |

Intelligent Power Protector

Uninterruptible power systems are designed to protect your network devices from power anomalies, including surges, sags and frequency variations. But when the power goes out for longer than your available battery runtime Intelligent Power Protector software facilitates automatic, graceful shutdown of computers, servers and network devices powered by a UPS, saving all work-in-progress and ensuring data integrity.

Intelligent Power Protector has also monitoring and alarm handling capabilities making it a complete solution for a single UPS.

Intelligent Power Protector has comprehensive choices for shutdown triggers, timings and modes. User can choose whether the operating system should shut down, hibernate, power off or run a custom script. The start of shutdown can be based on an instant event, delay or remaining runtime on the UPS.

There could be hundreds of UPSs in a network, each powering multiple servers running shutdown software. Managing that kind of setup could easily become a nightmare, especially because new computers are added and old ones moved all the time. Intelligent Power Manager comes to the rescue by clearly showing which Protectors are connected to a particular UPS.

Intelligent Power Protector introduces the concept of Virtual Power Source. That could be multiple UPS systems in parallel or several power supplies powering a server. It could be also a combination of other virtual power sources, which allows very complex power schemes to be made understandable to both IPP and the administrator. It is also possible to set the required level of redundancy.

Intelligent Power Software can perform actions when events of any given type or criticality occur. These actions include notifications on computer screens, command execution and email sending. To limit the amount of emails, it is possible to combine several events into a single message. This is a particularly valuable feature in large installations.

Features:

- Graceful shutdown of operating systems in case of an extended power failure or other condition that threatens the availability of IT equipment
- Supports Eaton Powerware® and Pulsar series UPS through network, RS232 serial and USB communication
- Supports redundant power supplies and parallel UPS configurations
- Silent unattended installation option
- Manageable with Intelligent Power Manager



Shut down settings



Powered applications



Support for redundant power



Event configuration

Connectivity Options

Web/SNMP cards are complete UPS monitoring, control and shutdown solutions in a networked IT environment.

In case of alert the Web/SNMP card can notify users and administrators through e-mail and SNMP traps. In case of a prolonged power failure the protected computer systems can be shut down in a graceful manner with Intelligent Power Protector software. The unique three-port switching hub on the X-Slot model provides additional network connections.

ConnectUPS-X

P/N 116750221-001 for Eaton 9155, 9355, 9390, 9395, BladeUPS.

ConnectUPS-E

P/N 116750223-001 is an external model that is connected to a serial port on a UPS. It supports Eaton 9130, 9155, 9355, 9390 and 9395 UPS (requires cable 1023247).

Network Card-MS Web/SNMP adapter

Catalog number: Network-MS

The Eaton Network Card-MS supports SNMP v1 and v3; IPv4 and v6; http, https and SMTP

Works with: 5130, 5PX, 9130, 9135, Evolution, Evolution S, EX, MX, MX Frame, EX RT



Environmental Monitoring Probe (EMP) adds temperature, humidity and two contact closure monitoring capability to ConnectUPS Web/SNMP cards. It is well suited for monitoring rack temperature and door status, as well as battery temperature. Operating system shutdown can be triggered if user defined thresholds are exceeded or contact closure status changes.

P/N 116750224-001 works with Network-MS, Network and Modbus – MS, ConnectUPS and PXGX cards as well as network enabled ePDUs.



Relay/AS400 cards are an easy connection to IBM AS/400 series computers as well as industrial and building management systems. P/N 1018460 for Eaton 9155, 9355, 9390, 9395, BladeUPS.

P/N 1014018 for Eaton 9130.

C/N RELAY-MS for 5130, 5PX, 9135, Evolution, Evolution S, EX, MX, MX Frame, EX RT



X-Slot ModBus card connects the UPS to industrial and building management systems using ModBus/JBUS RTU protocol.

P/N 103005425-5591 for Eaton 9155, 9355, 9395, BladeUPS.

Network and MODBUS Card-MS (MODBUS-MS) offers

ModBus RTU in addition to Web and SNMP for 5130, 5PX, 9130, 9135, Evolution, Evolution S, EX, MX, MX Frame, EX RT

PXGX UPS card P/N 103007974-5591 offers ModBus TCP as well as Web and SNMP interfaces for 9155, 9355, 9390, 9395 and BladeUPS.



ViewUPS-X remote display is an LCD panel that lets users view the status of the UPS from as far as 100 m. ViewUPS-X has also four status LEDs and an alarm sound. The display is bundled with a dedicated X-Slot card that also powers the display through the communication cable. In addition to the remote display connection the card has also a SELV isolated relay port for connection to monitoring systems and AS/400 computers.

P/N 1027020 for 9155, 9355, 9390, 9395 and BladeUPS.



UPS Runtime Tables

BladeUPS

| Load | #42U Racks | 4 kW | 8 kW | 12 kW | 24 kW | 36 kW | 48 kW | 60 kW | | | |
|---|------------|------|------|-------|-------|-------|-------|-------|------|------|------|
| 1 x BladeUPS (12 kW Internal battery) | 6 | 6 | 1 | 23 | 8,7 | 4,7 | | | | | |
| + 1 External Battery Module | 9 | 9 | 1 | 41 | 17,6 | 9,5 | | | | | |
| + 2 External Battery Module | 12 | 12 | 1 | 65 | 28 | 17 | | | | | |
| + 3 External Battery Module | 15 | 15 | 1 | 93 | 43 | 27 | | | | | |
| + 4 External Battery Module | 18 | 18 | 1 | 119 | 55 | 34 | | | | | |
| 2 x BladeUPS (12 kW N+1 Internal battery) | 12 | 18 | 1 | 44 | 23 | 13,6 | | | | | |
| + 1 External Battery Module | 18 | 24 | 1 | 85 | 41 | 27 | | | | | |
| + 2 External Battery Module | 24 | 30 | 1 | 137 | 65 | 41 | | | | | |
| + 3 External Battery Module | 30 | 36 | 1 | 198 | 93 | 59 | | | | | |
| + 4 External Battery Module | 36 | 42 | 2 | 257 | 119 | 76 | | | | | |
| 3 x BladeUPS (24 kW N+1 Internal battery) | 18 | 24 | 1 | | 34 | 23 | 8,7 | | | | |
| + 1 External Battery Module | 27 | 33 | 1 | | 34 | 41 | 17,6 | | | | |
| + 2 External Battery Module | 36 | 42 | 2 | | 102 | 65 | 28 | | | | |
| + 3 External Battery Module | 45 | 51 | 2 | | 147 | 93 | 43 | | | | |
| + 4 External Battery Module | 54 | 60 | 2 | | 190 | 119 | 55 | | | | |
| 4 x BladeUPS (36 kW N+1 Internal battery) | 24 | 30 | 1 | | | 30 | 13,6 | 7,3 | | | |
| + 1 External Battery Module | 36 | 42 | 2 | | | 56 | 27 | 14,7 | | | |
| + 2 External Battery Module | 48 | 54 | 2 | | | 89 | 41 | 24 | | | |
| + 3 External Battery Module | 60 | 66 | 2 | | | 128 | 59 | 37 | | | |
| + 4 External Battery Module | 72 | 78 | 2 | | | 165 | 76 | 47 | | | |
| 5 x BladeUPS (48 kW N+1 Internal battery) | 30 | 36 | 1 | | | | 19 | 10 | 6,6 | | |
| + 1 External Battery Module | 45 | 51 | 2 | | | | 34 | 21 | 13,3 | | |
| + 2 External Battery Module | 60 | 66 | 2 | | | | 54 | 31 | 23 | | |
| + 3 External Battery Module | 75 | 81 | 2 | | | | 77 | 48 | 35 | | |
| + 4 External Battery Module | 90 | 96 | 3 | | | | 98 | 61 | 44 | | |
| 6 x BladeUPS (60 kW N+1 Internal battery) | 36 | 42 | 2 | | | | | 23 | 13,5 | 8,7 | 6,2 |
| + 1 External Battery Module | 54 | 60 | 2 | | | | | 41 | 27 | 17,6 | 12,6 |
| + 2 External Battery Module | 72 | 78 | 2 | | | | | 65 | 41 | 28 | 21,6 |
| + 3 External Battery Module | 90 | 96 | 3 | | | | | 93 | 59 | 43 | 33 |
| + 4 External Battery Module | 108 | 114 | 3 | | | | | 119 | 76 | 55 | 42 |

* Note: each UPS requires the same number of external batteries

Time in minutes

9155 and 9355 8-15 kVA runtimes

Runtimes for UPS with internal batteries (UPS load with typical 0.7 p.f.)

| Battery | Qty | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | kVA |
|-----------|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 7 Ah 12 V | 1 x 32 | 36 | 26 | 20 | 15 | 12 | 10 | 7 | 6 | - | - | - | - | - | min |
| 9 Ah 12 V | 1 x 32 | 42 | 32 | 24 | 21 | 16 | 15 | 12 | 10 | 9 | 8 | 7 | 6 | 5 | min |
| 7 Ah 12 V | 2 x 32 | 86 | 66 | 46 | 38 | 33 | 28 | 23 | 20 | 16 | 15 | 13 | 12 | 10 | min |
| 9 Ah 12 V | 2 x 32 | 95 | 74 | 61 | 44 | 38 | 33 | 29 | 25 | 22 | 20 | 18 | 16 | 15 | min |

Runtimes for UPS with external battery cabinet

| Battery | Qty | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | kVA |
|-----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|-----|
| 7 Ah 12 V | 3 x 32 | 130 | 100 | 81 | 68 | 57 | 44 | 39 | 35 | 27 | 24 | 22 | 20 | 18 | min |
| 7 Ah 12 V | 4 x 32 | 200 | 133 | 108 | 91 | 78 | 69 | 61 | 47 | 40 | 35 | 32 | 29 | 27 | min |
| 7 Ah 12 V | 5 x 32 | 250 | 182 | 141 | 114 | 95 | 81 | 70 | 61 | 53 | 47 | 43 | 39 | 36 | min |
| 7 Ah 12 V | 6 x 32 | 316 | 230 | 178 | 144 | 120 | 102 | 89 | 78 | 67 | 60 | 54 | 50 | 45 | min |
| 7 Ah 12 V | 7 x 32 | 385 | 280 | 217 | 176 | 146 | 124 | 106 | 93 | 82 | 73 | 66 | 60 | 55 | min |
| 7 Ah 12 V | 8 x 32 | 458 | 333 | 258 | 209 | 174 | 147 | 126 | 110 | 97 | 87 | 79 | 72 | 66 | min |

UPS Runtime Tables

Runtimes for UPS with internal batteries (4 x 36 pcs 9 Ah) and external battery cabinet(s) with 24 Ah batteries (one external battery cabinet can fit 2 strings of 24 Ah batteries)

| Internal Battery | | External Battery | | | | | | | | | | |
|------------------|--------|------------------|--------|--------|-----|-----|-----|-----|-----|----|----|-----|
| Battery | Qty | Battery | Qty | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | kVA |
| 9 Ah 12 V | 4 x 36 | 24 Ah 12 V | 1 x 36 | 268 | 113 | 77 | 56 | 43 | 34 | 25 | 20 | min |
| 9 Ah 12 V | 4 x 36 | 24 Ah 12 V | 2 x 36 | 402 | 175 | 115 | 84 | 69 | 57 | 47 | 38 | min |
| 9 Ah 12 V | 4 x 36 | 24 Ah 12 V | 3 x 36 | 555 | 243 | 154 | 121 | 90 | 75 | 63 | 54 | min |
| 9 Ah 12 V | 4 x 36 | 24 Ah 12 V | 4 x 36 | > 10 h | 318 | 197 | 147 | 123 | 100 | 77 | 66 | min |

External battery (Panasonic LC-X1224AP) with four internal strings back up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load).

Runtimes for UPS with internal batteries (4x 36pcs 9Ah) and external battery cabinet(s) with 110W batteries (one external battery cabinet can fit 2 strings of 24 Ah batteries)

| Internal Battery | | External Battery | | | | | | | | | | |
|------------------|--------|------------------|--------|--------|-----|-----|-----|-----|-----|-----|----|-----|
| Battery | Qty | Battery | Qty | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | kVA |
| 9 Ah 12 V | 4 x 36 | 110 WPC12 V | 1 x 36 | 318 | 132 | 82 | 62 | 47 | 41 | 32 | 25 | min |
| 9 Ah 12 V | 4 x 36 | 110 WPC12 V | 2 x 36 | 518 | 225 | 138 | 104 | 81 | 66 | 50 | 42 | min |
| 9 Ah 12 V | 4 x 36 | 110 WPC12 V | 3 x 36 | > 10 h | 318 | 204 | 147 | 114 | 95 | 77 | 66 | min |
| 9 Ah 12 V | 4 x 36 | 110 WPC12 V | 4 x 36 | > 10 h | 430 | 266 | 198 | 153 | 124 | 103 | 87 | min |

External battery (CSB HRL 12110W) with four internal strings back up table for UPS ratings 20-40 kVA, p.f. 0.7 (typical IT server/computer load).

9390 40-160 kVA, external battery capacity

| Battery configuration | UPS load with typical load p.f.0,8 | | | | | | |
|-----------------------|------------------------------------|-----|-----|-----|-----|-----|-----|
| | 40 | 60 | 80 | 100 | 120 | 160 | kVA |
| 1xBAT (HR250) | 30 | 17 | 10 | - | - | - | min |
| 2xBAT (HR250) | 73 | 44 | 30 | 22 | 15 | 10 | min |
| 3xBAT (HR250) | 128 | 72 | 51 | 35 | 30 | 21 | min |
| 4xBAT (HR250) | 180 | 106 | 75 | 54 | 41 | 30 | min |
| 2xBAT (HR305) | 39 | 22 | 15 | - | - | - | min |
| 2xBAT (HR305) | 96 | 57 | 40 | 25 | 22 | 15 | min |
| 3xBAT (HR305) | 160 | 96 | 64 | 45 | 37 | 26 | min |
| 4xBAT (HR305) | 220 | 136 | 96 | 72 | 55 | 40 | min |
| 1xBAT (HRL12280) | 40 | 24 | 15 | 10 | 7 | - | min |
| 2xBAT (HRL12280) | 100 | 57 | 33 | 30 | 24 | 15 | min |
| 3xBAT (HRL12280) | 144 | 96 | 69 | 50 | 30 | 28 | min |
| 1xBAT (HRL12330) | 47 | 30 | 20 | 13 | 10 | 6 | min |
| 2xBAT (HRL12330) | 116 | 72 | 50 | 36 | 30 | 20 | min |
| 3xBAT (HRL12330) | 163 | 105 | 84 | 60 | 48 | 35 | min |
| 1xBAT (HRL12500) | 80 | 49 | 35 | 24 | 18 | 12 | min |
| 2xBAT (HRL12500) | 196 | 121 | 81 | 60 | 48 | 34 | min |
| 3xBAT (HRL12500) | 266 | 178 | 121 | 92 | 80 | 57 | min |
| 1xBAT (NSB125) | 87 | 53 | 36 | 27 | 20 | 12 | min |
| 2xBAT (NSB125) | 200 | 128 | 91 | 69 | 55 | 38 | min |
| 3xBAT (NSB125) | 305 | 200 | 145 | 115 | 94 | 64 | min |

9395 225-275 kVA, external battery capacity

| Battery configuration | UPS load with typical load p.f. 0,9 | | | | | |
|-----------------------|-------------------------------------|-----|-----|-----|-----|-----|
| | 160 | 200 | 225 | 250 | 275 | kVA |
| 1xBAT CSB HRL 500 | 9 | 5 | - | - | - | min |
| 2xBAT CSB HRL 500 | 29 | 20 | 17 | 14 | 12 | min |
| 3xBAT CSB HRL 500 | 49 | 37 | 32 | 28 | 24 | min |

*Load power factor 0,9

| Battery configuration | UPS load with typical load p.f.0,8 | | | | | |
|-----------------------|------------------------------------|-----|-----|-----|-----|-----|
| | 160 | 200 | 225 | 250 | 275 | kVA |
| 1xBAT CSB HRL 500 | 12 | 7 | 5 | 3 | - | min |
| 2xBAT CSB HRL 500 | 34 | 25 | 20 | 17 | 15 | min |
| 3xBAT CSB HRL 500 | 57 | 43 | 37 | 33 | 28 | min |

The battery backup table is given with end voltage 1.70 VPC and temperature +25°C.
The batteries are fully charged and measured after minimum (5) full discharge cycles.

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority. For more information, visit www.eaton.com/electrical.

In addition to the wide product portfolio Eaton has a comprehensive range of service packages to match different type of maintenance needs and budgets. For assistance with your power quality needs, contact your local Eaton service and sales representatives.

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