

Power Quality Solutions

# Eaton 93PM UPS

Energy efficiency you can rely on more,  
scale more, and own for less.



**EATON**

*Powering Business Worldwide*

# Eaton's heritage in industry-leading UPS design and production



For more than 50 years, Eaton has been safeguarding the critical systems of businesses across the globe. Whether protecting a single desktop or the largest data centre, Eaton solutions provide clean, uninterrupted power to keep mission-critical applications working.

We offer a comprehensive range of environmentally-sensitive, efficient, reliable UPSs, surge protective devices, power distribution units (PDUs), remote monitoring, meters, software, connectivity, enclosures, airflow management and professional services.

We work with IT and facilities managers to effectively manage power in virtually every business segment, including data centres, retail outlets, healthcare organisations, governmental agencies, manufacturing firms, broadcasting companies, financial institutions, and a wide variety of other applications.

Our solutions provide the power to make a difference, helping you achieve your business goals while maintaining environmentally sustainable enterprises.

## A world-class support structure

As an industry-leading UPS provider, at Eaton we're constantly working to ensure that our service standards meet your needs precisely. Our trained service team is on hand 24/7 to minimise risks by detecting and addressing problems before they happen. In South East Asia, this service network consist of field engineers who receive comprehensive, up-to-date training on the latest products and technologies.

The experience and know-how of our servicing resources provide a dedicated support package which helps to ensure your equipment is running safely, reliably, sustainably and energy-efficiently at all times.



*Committed to creating and maintaining powerful customer relationships based on a foundation of excellence.*

# Maximum energy efficiency

## Minimum operating costs

The Eaton 93PM UPS features market-leading operating efficiency and world-class intelligent software solutions, to ensure the continuity of your mission-critical operations with a minimum TCO.

### Lowest Total Cost of Ownership

- Up to 97% efficiency in double conversion
- > 99% efficiency with Energy Saver System
- All achieved in a compact footprint

### Highly scalable and reliable

- Scalable architecture and 'Pay as you grow' capability to minimise CapEx
- Hot Sync wireless paralleling and internal redundancy for maximum availability

### Easy deployment

- Thermal management support for installation against the wall, in row and in hot/cold aisle configurations
- Fast MTTR

### Easy management

- Web and SNMP interfaces as standard
- Intelligent Power® software for monitoring and managing
- Intuitive user interface and visual data logging

### Key applications

- Small, medium and large data centres
- Modular and virtualised data centres
- Mission-critical applications
- IT infrastructure



Front view of the Eaton 93PM 200 kW UPS

*Our solutions provide the power to make a difference, helping you achieve your business goals while maintaining environmentally sustainable enterprises.*

# The market-leading advantage in sustainability, efficiency and TCO

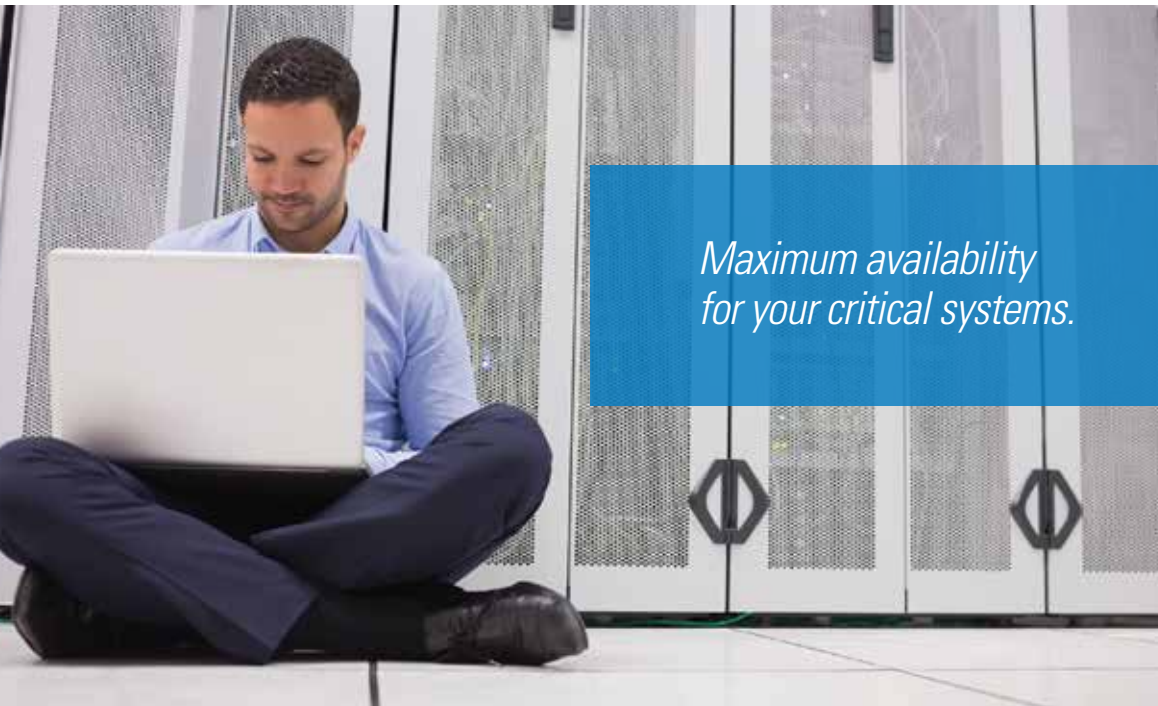


The Eaton 93PM UPS leads the market for sustainability and efficiency. High operating efficiency in double conversion is achieved with high-end converter technology. In addition, an innovative Energy Saving System (ESS) technology enables reaching > 99% energy efficiency with double conversion available on-demand. Together they enable achieving a better PUE in data centres, helping to bring down the Total Cost of Ownership.

## **Optimal efficiency**

On-line double conversion topology ensures the UPS output is not affected by any abnormalities in the utility power and keeps critical load equipment protected against all common power problems.

Modern multilevel converter technology minimises energy wastage and maximises the UPS operating efficiency to market-leading levels. The efficiency curve is extremely flat, resulting in high efficiency also when operating in partial load.



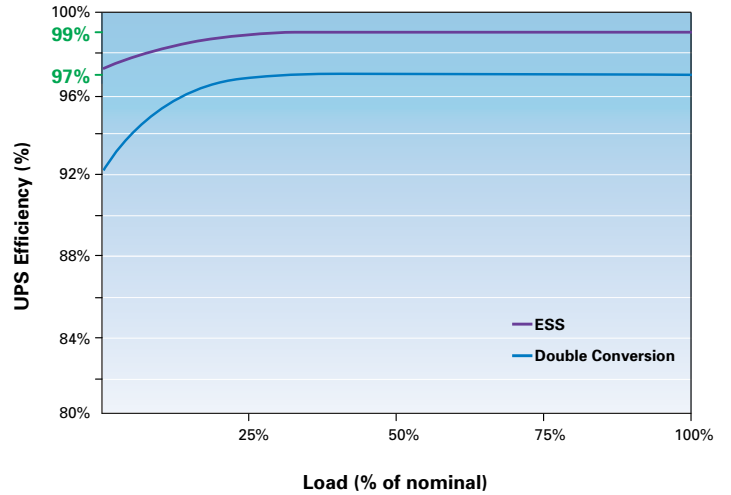
### 99%+ efficiency is an option

Even small increases in UPS efficiency can quickly translate into thousands of dollars, realised in more real power and lower cooling costs. Energy Saver System (ESS) enables efficiency levels of over 99% across the typical UPS operating range.

In ESS, load is powered securely through static bypass line with double conversion available on-demand with typical two millisecond transition time in the event of any abnormality on supply source. When operating in ESS, load is protected with inherent surge suppression.

When utility power quality is high, ESS can reduce UPS power losses by 70% as it runs on double conversion only when needed.

### Eaton 93PM Efficiency in Double Conversion and ESS



### More power, smaller footprint

The Eaton 93PM offers a high power density solution and conserves valuable data centre floor space with its compact footprint.

# Grow your system, increase availability, reduce your CapEx

The modular design of the Eaton 93PM UPS makes it simple and cost-effective to scale your system as your load demands change. At the same time, centralised topology, patented Hot Sync® wireless paralleling, and service-friendly design features help to ensure increased availability. And ultimately, the Eaton 93PM UPS helps to minimise your CapEx as well as Total Cost of Ownership.

## **Pay as you grow**

Why spend more now on a UPS that's above your present requirements, 'just in case'. Instead, you can spend less on the Eaton 93PM UPS, that simply and cost-effectively scales and adapts to future changes in your load demands or to new reliability requirements.

The 93PM UPS combines reliability and redundancy in an integrated, pre-wired solution with a unique, flexible, scalable design. So you only pay for what you need when you need it.

## **Maximise your availability**

The 93PM UPS helps to ensure maximum availability for your critical systems. At the same time, it maximises selectivity and enhances flexibility. Additional technological features enhance reliability and serviceability, and lower MTTR.

Centralised bypass topology provides full bypass capacity on day one, which maximises selectivity, without limiting scalability or flexibility. As the system size grows larger, availability is maximised because fewer bypass switches are being paralleled, making the system less complex and lowering the probability of bypass failure.

*Scalable architecture and pay as you grow capability.*



### Easy deployment

The fully front-accessible design allows quick access for service and maintenance. Front access, together with innovative thermal management options of front-to-top or front-to-back airflow, also enables installation against walls or back-to-back, in row or in hot/cold aisle configuration – maximising deployment flexibility.

### Increase your reliability

Eaton's unique, patented Hot Sync wireless paralleling technology ensures high reliability in systems with multiple Uninterruptible Power Modules.

Patented, and proven in thousands of systems worldwide, Hot Sync enables paralleled UPMs to operate completely independently, so there is no risk of a domino effect with one module affecting or interfering with another. There is also no system-level single point of failure.

With Hot Sync, any standard UPS can be used in a parallel system without modification, and with no additional circuitry required. The 93PM UPS can also be configured with inherent redundancy, to avoid underloading and associated reduced efficiency and reliability.

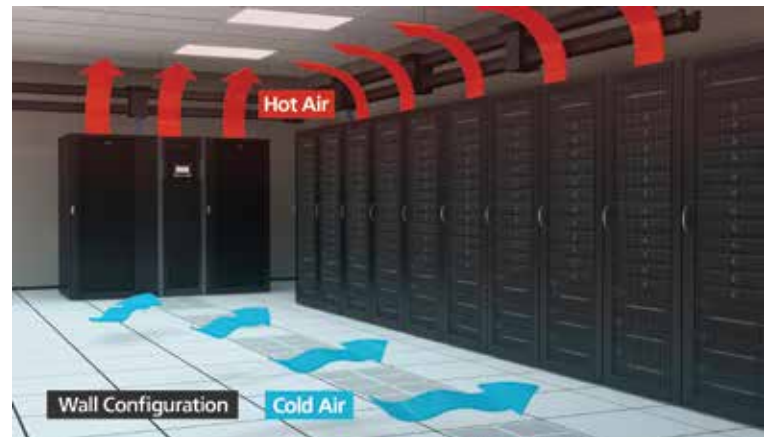
### Extend your battery life

Batteries are the essential back-up of your UPS, providing continuous power in the event of a power outage. So they need to be fully charged, fully operational, and ready to go as soon as required.

However, surveys show that improper battery management is the leading cause of downtime.

One reason for this is the constant trickle charging employed by many manufacturers for their UPS batteries. This process slowly degrades the batteries' internal chemical composition, reducing service life by as much as 50%. The 93PM UPS uses an innovative alternative method, incorporating a sensing circuit and three-stage charging technique to extend battery life and optimise recharging time.

The 93PM UPS also incorporates temperature-compensated charging, which monitors temperature changes and adjusts the rate of charge accordingly, to prolong battery life.



*Innovative thermal management options of front-to-top or front-to-back airflow.*

# Your problem, our solution

The Eaton 93PM UPS is not just one solution – it's many. Our Large Systems Group can work with you and with our local sales and project management teams, to create a solution tailor-made for your large data centre, providing high power performance, maximum availability and cost-efficient operation, with a minimum TCO.

However demanding your installation, environment or load application; however sophisticated your requirements; however specific your power problem; the Eaton Large System Group will ensure the 93PM UPS is perfectly tailored to the job.

For example, the minimal footprint of the 93PM, together with its modular, flexible design, means it can be adapted to suit containerised applications. In the same way, we can meet demands for ultra-modular solutions, supporting our 'pay as you grow' philosophy, by installing individual power modules, whilst maintaining maximum full-fault current capability on static bypass from day one.

So whatever your power problem, depend on Eaton to provide the customised solution.

## Your application, our product

Eaton can customise UPS-based systems to meet the needs of numerous markets, including:

- Mega data centres
- Oil and gas
- Rail and track, underground, traffic, tunnel, mines
- Aviation
- Industrial
- Defence/military
- Marine and offshore





# Take complete control

Managing and controlling your Eaton 93PM UPS is easy. Designed for the most advanced IT environments, the 93PM comes equipped with intuitive user interfaces, a large touchscreen LCD providing useful status information and back logs, and a full suite of power management and connectivity options.

## The complete solution

The Eaton 93PM UPS is designed for the most advanced IT environments, and it comes with interfaces for Web and SNMP as standard.

In the event of an alert, the UPS system notifies users and administrators by email. If there's a prolonged power failure, the protected computer systems can be shut down smoothly using the Intelligent Power® Protector software also incorporated with the 93PM.

Your 93PM can be connected directly to your corporate network and the internet. This means you can then monitor and manage your UPS through a standard web browser.

## Intelligent, intuitive, integral

The world-class Intelligent Power® Manager intelligent software solution of your 93PM UPS plugs into leading virtualisation management systems, including VMware vCenter, Microsoft SCVMM and Citrix XenCenter.

This user-friendly monitoring tool enables you to monitor and manage your UPS system as an integral part of your power infrastructure. It collects data through the network, then stores it in a database for viewing and analysis.

## Information, access, ease of use

Intelligent Power Manager® (IPM) can be used to monitor and manage all Intelligent Power Protectors running in the network. This dramatically reduces the administrator's workload, and minimises the possibility of error.

The web-based interfaces of the Intelligent Power® software simplify usage, by allowing access from any computer in the LAN, as well as remotely via the internet. Power information is consolidated in the same tool used to monitor and manage physical and virtual servers, storage and networks.

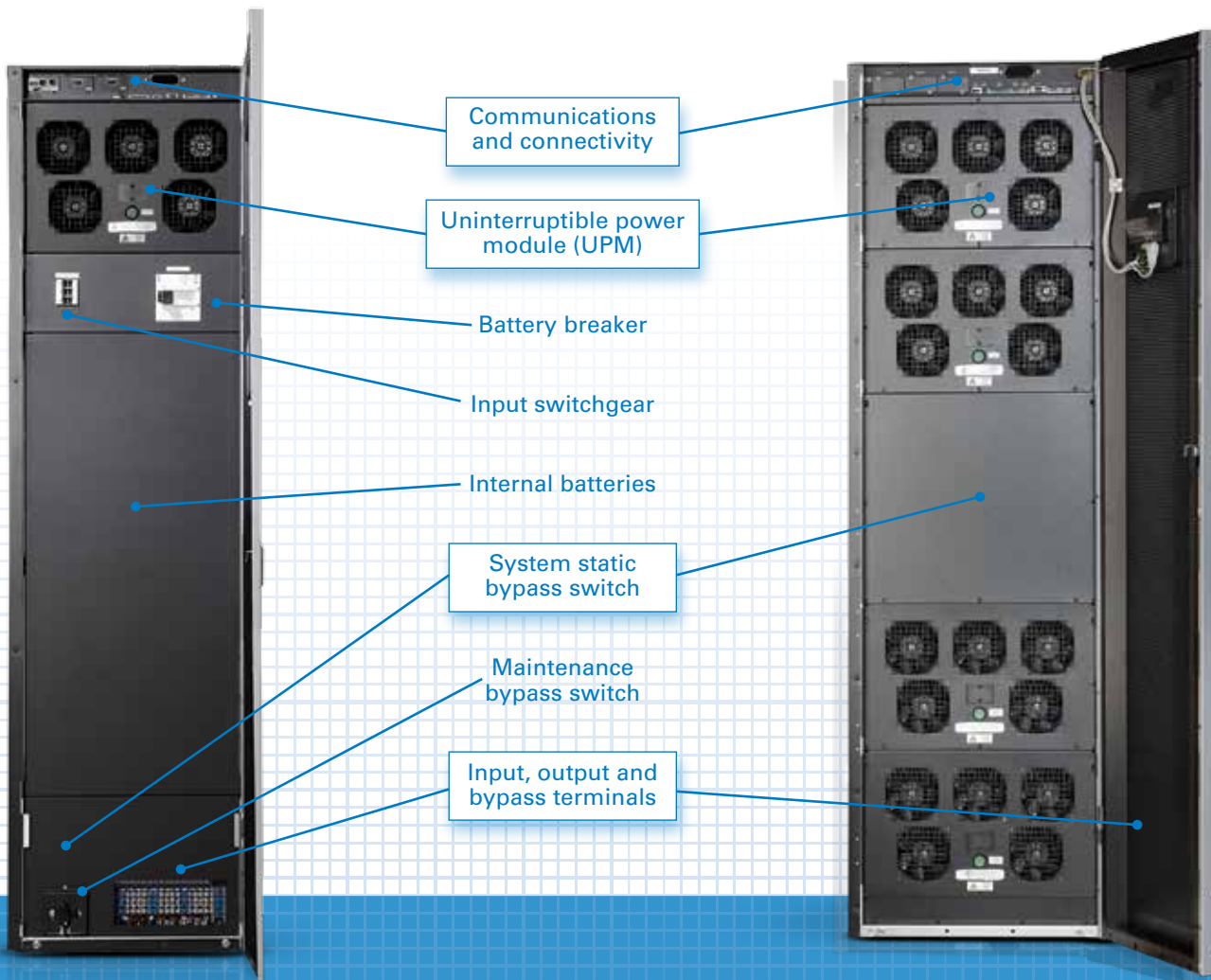
In the event of power failure, IPM can trigger protective actions such as live migration of virtual machines, controlled shutdown, or disaster recovery.



93PM 7" Touch Screen Colour LCD Interface



# Inside the Eaton 93PM UPS



93PM 50 kW

93PM 200 kW



## An Eaton Green Solution

**Reducing the use of materials and energy are two of the criteria which can lead to a product being designated an Eaton Green Solution, and being awarded the Eaton Green Leaf. The Eaton 93PM UPS is the latest product to achieve this award.**

Eaton Green Solutions represent the Eaton benchmarks for environmental performance. You can be sure that any product which carries the Green Leaf has been reviewed and documented as offering exceptional, industry-leading environmental benefits to our customers, consumers and communities.

# Eaton 93PM UPS 30–200 kW

## Technical specifications

General	
UPS output power rating (1.0 p.f.)	30, 40, 50, 80, 100, 120, 150, 160, 200 kW
Efficiency in double conversion mode	Up to 97%
Efficiency in Energy Saver System (ESS)	> 99%
Field upgradeable	Yes
Inverter/rectifier topology	Transformer-free IGBT with PWM
Audible noise	30–50 kW: < 60 dBA 80–200 kW: < 65 dBA ESS operation: < 47 dBA
Altitude (max)	1000 m without derating (max 2000 m)
Input	
Input wiring	3ph + N + PE
Nominal voltage rating (configurable)	220/380, 230/400, 240/415 V 50/60 Hz
Input voltage range	High +20% rectifier input, 10% bypass input. Low –15% at 100% load, –40% at 50% load without battery discharge
Input frequency range	40–72 Hz
Input Power Factor	0.99
Input ITHD	30 kW: < 4.5% 40–200 kW: < 3%
Soft start capability	Yes
Internal backfeed protection	Yes
Battery	
Battery type	VRLA
Charging method	ABM technology or Float
Temperature compensation	Optional
Battery nominal voltage (VRLA)	432 V (36 x 12 V, 216 cells) or 480 V (40 x 12 V, 240 cells) <b>Note: Strings with different battery voltage may not be paralleled!</b>
Charging current maximum	30–50 kW 16.5 A 80–100 kW 33 A 120–150 kW 49.5 A 160–200 kW 66 A
Battery start capability	Yes

Output	
Output wiring	3ph + N + PE
Nominal voltage rating (configurable)	220/380, 230/400, 240/415 V 50/60 Hz
Output UTHD	< 1% (100% linear load). < 5% (reference non-linear load)
Rated output power factor	1.0
Permitted load power factor	0.8 lagging – 0.8 leading
Overload on inverter	10 min 102–110%; 60 sec 111–125%; 10 sec 126–150% 300 ms > 150%. On battery mode 300 ms > 126%
Overload when bypass available	Continuous < 125%, 10 ms 1000% <b>Note: Bypass fuses may limit the overload capability!</b>

## Accessories options

External battery cabinets with long-life batteries,  
External maintenance bypass switch, integrated manual bypass (up to 150kW)  
MiniSlot connectivity (Web/SNMP, ModBus/Jbus, Relay)

## Communications

MiniSlot	3 communication bays
Network/SNMP interface	Yes, standard
Serial ports	Built-in host and device USB
Relay inputs/outputs	5 relay inputs and dedicated EPO 1 relay output

## Compliance with standards

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

Due to continuous product improvement programmes, specifications are subject to change without notice.

Model	Description	Rating	Full load run time	Dimensions (WxDxH)	Weight (with/without max. battery)
93PM-30(50)	30kW with internal battery, scalable to 50kW	30kW	Up to 20 minutes	560 x 914 x 1876	890/288 kg
93PM-40(50)	40kW with internal battery, scalable to 50kW	40kW	Up to 15 minutes	560 x 914 x 1876	890/288 kg
93PM-50(50)	50kW with internal battery	50kW	Up to 10 minutes	560 x 914 x 1876	890/288 kg

Model	Description	Rating	Dimensions (WxDxH)	Weight (without battery)
93PM-50(100)	50kW, scalable to 100kW	50kW	560 x 914 x 1876	272 kg
93PM-80(100)	80kW, scalable to 100kW	80kW or 40kW N+1	560 x 914 x 1876	338 kg
93PM-100(100)	100kW system	100kW or 50kW N+1	560 x 914 x 1876	338 kg
93PM-50(150)	50kW, scalable to 150kW	50kW	560 x 914 x 1876	306 kg
93PM-100(150)	100kW, scalable to 150kW	100kW or 50kW N+1	560 x 914 x 1876	372 kg
93PM-120(150)	120kW, scalable to 150kW	120kW or 80kW N+1	560 x 914 x 1876	438 kg
93PM-150(150)	150kW system	150kW or 100kW N+1	560 x 914 x 1876	438 kg
93PM-160(200)	160kW, scalable to 200kW	160kW or 120kW N+1	760 x 914 x 1876	556 kg
93PM-50(200)	50kW, scalable to 200kW	50kW	760 x 914 x 1876	358 kg
93PM-100(200)	100kW, scalable to 200kW	100kW or 50kW N+1	760 x 914 x 1876	424 kg
93PM-150(200)	150kW, scalable to 200kW	150kW or 100kW N+1	760 x 914 x 1876	490 kg
93PM-200(200)	200kW system	200kW or 150kW N+1	760 x 914 x 1876	556 kg

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 customised, 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/powerquality](http://www.eaton.com/powerquality)



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