Product catalogue

Power infrastructure solutions & products

Powering Business Worldwide

Powering business worldwide

As a global power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.

EATON

Powering Business Worldwide




We deliver:

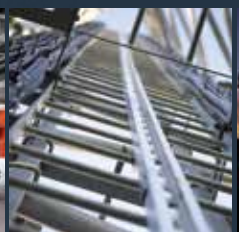
- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2017 sales of $20.4 Billion, Eaton has approximately 96,000 employees around the world and sells products in more than 175 countries.







Eaton's electrical business

Eaton is a global leader with expertise in:

- Power distribution and circuit protection
- Backup power protection
- Solutions for harsh and hazardous environments
- Lighting and security
- Structural solutions and wiring devices
- Control and automation
- Engineering services

Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges. With 100 years of electrical experience behind us, we're energized by the challenge of powering up a world that demands twice as much energy as today. We're anticipating needs, engineering products and creating solutions to energize our markets today and in the future.

We are dedicated to ensuring that reliable, efficient and safe power is available when it's needed most.

Eaton.com

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 a large 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 solutions, meters, software, connectivity solutions, 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 areas. Our solutions provide the power to make a difference, helping you achieve your business goals while maintaining an environmentally sustainable enterprise.

www.eaton.eu/powerquality

* At Eaton, we believe that power is a fundamental part of just about everything people do. That's why we're dedicated to helping our customers find new ways to manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. To improve people's lives, the communities where we live and work, and the planet our future generations depend upon. Because this is what really matters. And we're here to make sure it works.

To learn more go to: Eaton.com/whatmatters

EATON
Powering Business Worldwide

We make what matters work.

Contents

UPS Basics	
Why use UPS?	**8**
PC, Workstation and Home AV UPS	
Eaton Protection Box	**10**
Eaton Protection Strip	**11**
Eaton Protection Station	**12**
Eaton 3S UPS	**14**
Eaton Ellipse ECO UPS	**16**
Eaton Ellipse PRO UPS	**18**
Network and Server	
Eaton 5P UPS	**20**
Eaton 5PX UPS	**22**
Eaton 9SX Tower UPS	**24**
Eaton 9PX UPS 1000–3000W	**26**
Eaton 9PX UPS 5/6/8/11 kVA	**28**
Eaton 9155 UPS 8-15 kVA	**30**
Eaton 9155 UPS 20-30 kVA	**32**
Data Centre and Facility UPS	
Eaton BladeUPS	**34**
Eaton 93E UPS 15-80 kVA	**36**
Eaton 93E UPS 100-200 kVA	**38**
Eaton 93PS UPS 8-10 kW	**40**
Eaton 93PS UPS 8-40 kW	**42**
Eaton 93PM UPS	**44**
Power Xpert 9395P UPS	**46**
Eaton Connected	**48**
Eaton 93 STS	**50**
Marine and Industrial UPS	
Eaton 9PX Marine UPS	**52**
Eaton 9155M/9355M UPS 8 - 15 kVA	**54**
Eaton 9155M/9355M UPS 20-40 kVA	**56**
Eaton 93PS Marine UPS	**58**
Eaton 9PHD Marine UPS	**60**
Eaton 9PHD Industrial UPS	**62**








Contents

Power Distribution Units	
Eaton ATS	**64**
Eaton FlexPDU & Eaton HotSwap MBP	**66**
Eaton ePDUs G3	**68**
Power Management Software & Connectivity	
Power management for IT equipment	**72**
Operating Systems Compatibility list	**74**
Connectivity Options	**75**
Intelligent Power Manager Infrastructure	**77**
Services	
Maintenance contracts	**80**
Remote monitoring with Eaton SmartQmmunicator	**82**
Distributed services for UPSs of up to 200 kVA power range	**84**
Green Life Cycle	
Green by design	**91**
Technology	
Hot Sync Technology	**92**
ABM Technology	**94**
Energy Saver System	**96**
Variable Module Management System	**98**





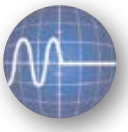



Why use UPS?

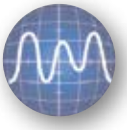
An uninterruptable power supply (UPS) protects IT equipment and other electrical loads from problems that can affect the public electricity supply. It performs the following three basic functions:

1. Prevents hardware damage typically caused by surges and spikes. Many UPS models continually condition incoming power as well.
2. Prevents data loss and corruption. Without a UPS, data stored on devices that are subjected to a hard system shutdown may become corrupted or even lost completely. In conjunction with power management software, a UPS can facilitate a graceful system shutdown.
3. Provides availability for networks and other applications while preventing downtime. UPSs can also be paired with generators in order to give the generators sufficient time to power up in the event of a power cut.

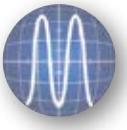
Eaton UPSs address all of the nine common power problems below:



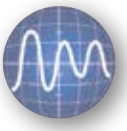
1. Power failure
typically caused by lightning strike or fault with the power company's equipment. Without a UPS, this will cause a hard shutdown, putting data at risk.



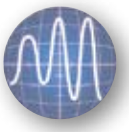
2. Power sag
Short-term voltage reduction, often caused by start-up of nearby large loads. Power sags can cause equipment crashes and hardware damage.



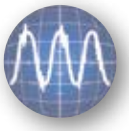
3. Power surge
Short-term high voltage, usually caused by lightning strike nearby. Spikes almost always lead to data loss and/or hardware damage.



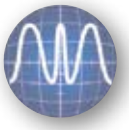
4. Undervoltage
Reduced supply voltage lasting from minutes to days. Typically occurs when supply network is overloaded. Can lead to computers behaving unpredictably.



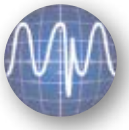
5. Overvoltage
Increased supply voltage lasting from minutes to days. Often triggered by rapid reductions in power demands, overvoltage can damage hardware.



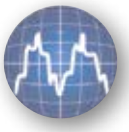
6. Electrical noise
"Interference", typically from radio transmitters, welding equipment etc. Noise can cause hard-to-find intermittent problems.



7. Frequency variation
Changes in supply frequency, usually only found on supplies from generators.



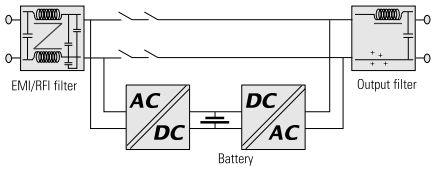
8. Switching transient
Instantaneous undervoltage, typically lasting a few nanoseconds.



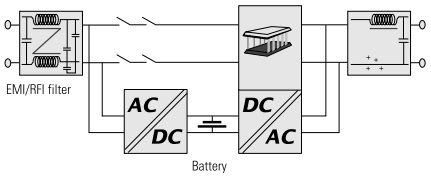
9. Harmonic distortion
Disortion of the normal smooth supply waveform. Can be caused by variable spreed drivers and even photocopiers. Can cause communication errors, overheating and hardware damage.

UPS topologies for different needs

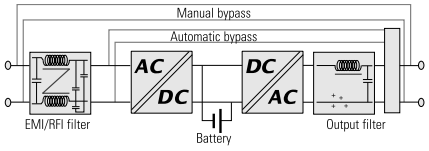
Three common UPS topologies described below provide varying degrees of protection for your equipment.



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.



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.

Eaton Protection Box

Eaton Protection Box 8

Eaton Protection Box 5

Eaton Protection Box 1

Advanced protection for:

- Computers, peripherals and multimedia
- TV, Video and Hi-Fi equipment: Home cinema, DVD writers, digital decoders, etc.
- Broadband modems (Internet and TV)
- IP telephony
- Household goods, etc.

Surge protection

The Eaton Protection Box multi-way block with high performance surge protection is a simple solution for protecting delicate equipment.

Effective surge protection

The Protection Box is designed to filter the power supply for delicate equipment to protect it against surges, interference and the indirect effects of lightning.

The high performance of the Protection Box is based on an advanced design with surge protection in compliance with IEC 61643-1.

Complete protection

The Protection Box range has models with 1, 5 or 8 sockets. Some models also provide protection for telephone connections that can carry surges to the equipment.

- Tel@ models: with telephone/broadband Internet access protection
- Tel@ + TV models: with telephone/broadband Internet access protection + Audio/Video protection module (surge protection for television and FM radio with TV and F-Type connectors)

Practical and economical: replaceable surge protection module

(Protection Box 5 Tel@, 5 Tel@ + TV and 8 Tel@ + TV)

The surge protective components for these models are grouped into a pluggable module for:

- Easy replacement if the surge protective devices are destroyed by a major surge (no need to disconnect the equipment and the pluggable unit is an Eaton standard replacement part)
- Can be updated (adding functions, changing connectors, etc.)

Warranty for connected equipment

Eaton offers free warranty for the equipment connected (applicable for EU countries and Norway only). This insurance is included in the purchase price of the Protection Box and covers up to 50 000 € for an 8 socket model to cover damage caused by a failure of the surge protection.

And lots of features to simplify life

- Power ON and active protection indicators
- PowerLine Communications compatibility (Protection Box 5/8) for connecting PLC adapters
- Cable ties and cable markers supplied (5 and 8 socket models)
- Sockets arranged to allow blocks to be plugged side by side

Eaton Protection Box

1 Power ON indicator
2 Active protection indicator
3 Telephone / broadband protection
4 Replaceable surge protection module

Eaton Protection Box 8

Eaton Protection Box 5

5 Widely spaced sockets for transformer units, 1 PLC-ready outlet (for Protection Box 5 and 8)
6 All outlets with safety shutters

TECHNICAL SPECIFICATIONS

	1	1 Tel@	5	5 Tel@	5 Tel@+TV	8 Tel@+TV
Rating (A/W)*	16 A / 3 680 W	16 A / 3 680 W	10 A / 2 300 W	10 A / 2 300 W	10 A / 2 300 W	10 A / 2 300 W
Voltage/frequency	220 V – 250 V / 50/60 Hz					
IEC 61643-1 tested	Yes	Yes	Yes	Yes	Yes	Yes
PowerLine compatibility	/	/	Yes	Yes	Yes	Yes
Surge test conditions						
Surge test conditions for IEC 61643-1 with 8/20µs pulse	Uoc = 6.6 kV - Up = 1.5 kV - In = 2.5 kA - Imax = 8 kA					
Protective devices						
Total rating	30 000 A, 3 x MOV 10 000 A					
Response time	<1ns					
Total power absorbed	1110 Joules					
EMI/RFI filter						
52 dB from 100kHz to 100MHz	/	Yes	/	Yes	Yes	Yes
Telephone and audio/video line protection						
RJ11/RJ45 telephone including broadband	/	10 000 A	/	10 000 A	10 000 A	10 000 A
Audio/Video line	/	/	/	/	10 000 A	10 000 A
Marking and standards						
Safety	IEC 60-950, NFC 61-303					
EMC	EN 55082-2, EN 55022 class B, EN 61000-4-4 level 4 IEC 61000-4-5, level X=10kV					
Surge protection	IEC 61 643-1					
Dimensions and weight						
Dimensions H x W x D	67 x 70 x 105 mm	67 x 70 x 105 mm	65 x 120 x 255 mm	65 x 120 x 260 mm	65 x 120 x 260 mm	65 x 150 x 315 mm
Weight	0.160 kg	0.210 kg	0.610 kg	0.770 kg	0.840 kg	0.850 kg
Customer Service & Support						
2 years warranty	Standard product exchange ; warranty for connected equipment up to 50 000 €					
Replaceable surge protection module	Standard exchange free of charge from Eaton aftersales services					

*: Calculated for a nominal voltage at 230 V

Part Numbers	1	1 Tel@	5	5 Tel@	5 Tel@+TV	8 Tel@+TV
French sockets (FR)	66 706	66 707	66 710	66 711	66 934	66 935
"Schuko" sockets (DIN)	66 708	66 709	66 712	66 713	66 936	66 937
French sockets (FR-B) for Belgium	/	/	66 932	/	66 938	/


FR DIN

Protection Strip 4 DIN, partnumber: 68581

Protection Strip 6 DIN, partnumber: 68583

Surge protection for computer / mediacenter / phone / TV / Hi-Fi / Video equipment, 4 or 6 outlets with safety shutters, 3 LINE PROTECTION technology effective against all types of perturbations, active protection indicator, ON/OFF button with resettable circuit breaker, wall-mounting possibility.

Protection Strip 4 , partnumber: 68580 (FR) , 68581 (DIN)

Protection Strip 6 , partnumber: 68582 (FR) , 68583 (DIN)

Protection Strip 6 TEL, partnumber: 68584 (FR) , 68585 (DIN)

Surge protection for computers with Internet connection or phone equipment, 3 LINE PROTECTION technology effective against all types of perturbations, 6 outlets with safety shutters, Tel/Modem/Internet ADSL line protection, active protection indicator, ON/OFF button with resettable circuit breaker, wall-mounting possibility.

Eaton Protection Station

500/650/800 VA

Eaton Protection Station 800

Multi-position

Advanced protection for:

- Home computing
- Digital leisure equipment

Combined UPS/surge protection/ multiple socket device

Innovative solutions offering total protection for home computers and digital leisure devices.

Connect all your equipment and protect them against power failures and voltage fluctuations…

Eaton Protection Station can do this, offering in a single device:

- Up to 8 standard outlets
- A high performance surge suppressor
- A UPS with 20 to 30 minutes battery back-up for a typical PC

The first UPS in this class with energy saving features

Eaton Protection Station boasts an efficient electrical design with **EcoControl function** that **automatically disables peripherals** when the master device (Computer, HD TV, Home network storage, etc...) is turned off. This will help you **save up to 30% energy** compared to previous generation UPSs.

One model suitable for each application

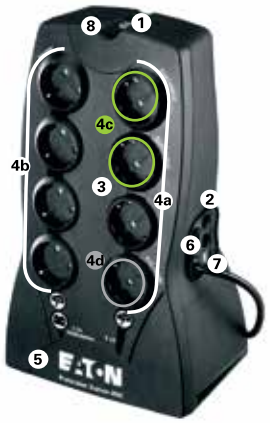
3 versions (500 VA/250 W, 650 VA/400 W or 800 VA/500 W backup power), to protect an internet PC, a multimedia computer with peripherals or a hardcore gamer configuration. Thanks to its multi-position format Eaton Protection Station can fit anywhere.

Guarantees total peace of mind

- Surge suppressor compatible with IEC 61 643-1 standard (+ status indicator)
- USB port and power management software as standard (650 & 800 models)
- Data line protection to ensure that the internet line (including xDSL) is protected against surges
- Unlimited warranty for the connected computer equipment (EU countries and Norway)
- Periodic test and battery replacement indicator

Eaton Protection Station

1 Surface protection status indicator
2 Line protection for telephone/Internet ADSL
3 Spaced outlets, compatible with local standards
4a Outlets with surge protection
4b Outlets with surge protection and back-up power
4c 2 EcoControl outlets (650 & 800)



4d 1 PLC-ready outlet
5 Replaceable battery
6 Reset button (circuit breaker)
7 USB port (650 & 800) with Windows/Linux/Mac software
8 Indicator for mains/battery operation, overload, fault + audible alarms

Eaton Protection Station 650 & 800

TECHNICAL SPECIFICATIONS

	500	650	800
Technology	High frequency UPS with surge protection		
Application			
Outlets	6 standard outlets (3 with back-up power and surge protection + 3 with surge protection)	8 standard outlets (4 with back-up power and surge protection + 4 with surge protection)	
Performance			
Output power capacity (backup outlets)	500 VA - 250 W	650 VA - 400 W	800 VA - 500 W
Output power capacity (all outlets)	5 A - 1150 VA	10 A - 2300 VA	10 A - 2300 VA
Input voltage range	184 V - 264 V	Up to 160 V - 284 V (adjustable)	Up to 160 V - 284 V (adjustable)
Output voltage and frequency	230 V - 50 / 60 Hz auto-selection		
Protection	Resettable circuit breaker		
Batteries			
Battery type	Replaceable sealed lead-acid batteries		
Battery monitoring	Automatic battery test, battery replacement indicator, protection against deep discharges (4-hour limit)		
Battery operation	Cold-start capable (mobile power source), battery charging even in OFF position		
Typical application	1 internet computer	1 multimedia computer + peripherals	1 computer high graphics power
Backup time with typical application	20 min	30 min	30 min
Features			
User interface	Operation with mains/battery power, surge suppressor status, overload, battery replacement, fault, audible alarms		
EcoControl	/	Save up to 30% energy* (efficient electrical design and automatic deactivation of idle peripherals)	
Surge protection	Complete common and differential mode protection - 3 MOV – Total power: 525 Joules, compatible with IEC 61643-1 standard		
Performance on 8/20 wave	Uoc = 6 kV Up = 1.5 kV In = 2.5 kA I max = 8 kA	Uoc = 6 kV Up = 1.7 kV In = 2.8 kA I max = 8 kA	Uoc = 6 kV Up = 1.7 kV In = 2.8 kA I max = 8 kA
PowerLine compatibility	/	1 PLC-ready outlet	1 PLC-ready outlet
Data line protection	Protection for telephone/fax/modem/Internet ADSL line + Ethernet network		
Installation	Requires earth connection		
Standards			
Standards	IEC 62040-1, IEC 62040-2, IEC 61643-1		
Quality and environment	ISO 9001, ISO 14001		
Dimensions and weight			
Dimensions W x H x D	155 x 304 x 137 mm	185 x 327 x 149 mm	185 x 327 x 149 mm
Weight	2.9 kg	3.8 kg	4 kg
Power Management			
Com port	/	USB port	USB port
Software	/	Eaton UPS Companion software on CD, compatible with Windows 7/Windows Vista/XP/Mac/Linux (power management, Automatic system shutdown, Alarm notification, Events log)	
Customer service & support			
2 years guarantee	Standard product exchange, including the battery ; warranty for the connected computing equipment for an unlimited amount (EU countries)		
Warranty+	Optional 3 years warranty (depending on the country please visit www.eaton.eu/powerquality)		

*compared to UPS from the previous generations

Part Numbers	500	650	800
FR outlets	66 942	61 061	61 081
DIN outlets	66 943	61 062	61 082


FR


DIN

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 Dataline 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 Dataline 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	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.eu/powerquality)	

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


FR DIN IEC

Eaton Ellipse ECO

500/650/800/1200/1600 VA

Eaton Ellipse ECO range

Eaton Ellipse ECO easy integration

Energy-efficient power protection for business computers

- With an efficient electrical design and the EcoControl function (USB models), which automatically disables peripherals when the master device is turned off, the Eaton Ellipse ECO helps you make energy savings of up to 25% compared to previous-generation UPSs.
- As well as providing a power supply backed up by a battery to keep equipment operating during a power failure, the Ellipse ECO also provides effective protection against damaging surges.
- The Ellipse ECO includes a high performance surge-protection device that complies with IEC 61643-1; this device also protects data connections such as Ethernet, internet and telephone lines.

Easy integration and installation

- The Ellipse ECO comes with either four (500/650/800 models) or eight outlets (1200/1600 models) with Schuko (DIN) or French (FR) format for easy connection to typical computer configurations with peripherals. IEC models are also available.
- The Ellipse ECO's extra-flat design makes it easy to install in any office environment: installation options include vertical box format, below the desk, horizontally under a monitor, 19" rack-mounted (optional 2U kit) and wall-mounted (optional kit).
- The USB models are designed to be compatible with a wide variety of different computer models. Eaton UPS companion is delivered as standard (CD and USB cable supplied) and is compatible with all major operating systems (Windows 7, Vista, XP, Linux and Mac OS).

Complete peace of mind

- Unlimited warranty for the connected computer equipment (EU countries and Norway)
- Periodic battery self-test ensures early detection of a battery that needs to be replaced.
- Easy-to-replace battery helps to extend UPS service life.
- Push-button circuit breaker enables easy recovery from an overload or short circuit.

Eaton Ellipse ECO

1 3 outlets with surge protection and backup, 1 socket with surge protection only
1a 1 EcoControl outlet (USB models)
2 Tel/Internet and Ethernet protection
3 USB port (USB models)
4 Replaceable batteries
5 Circuit breaker reset button

Eaton Ellipse ECO 500/650/800

Eaton Ellipse ECO 1200/1600

1 4 outlets with surge protection and backup
2 4 outlets with surge protection
2a 2 EcoControl outlets (1200 & 1600)
3 Tel/Internet and Ethernet protection
4 USB port
5 Replaceable batteries
6 Circuit breaker reset button

TECHNICAL SPECIFICATIONS

	500	650	650 USB	800 USB	1200 USB	1600 USB
Rating (VA/W)	500 VA / 300 W	650 VA / 400 W	650 VA / 400 W	800 VA / 500 W	1200 VA / 750 W	1600 VA / 1000 W
Application						
Number of outlets	4	4	4	4	8	8
Outlets with surge protection and backup / Outlets with surge protection	3/1	3/1	3/1	3/1	4/4	4/4
Characteristics						
Nominal input voltage	230 V					
Input voltage	184 V - 264 V (adjustable to 161 V - 284 V)					
Output voltage	230 V (adjustable to 220 V, 230 V, 240 V					
Frequency	50-60 Hz autoselect					
Input protection	Resettable circuit breaker					
Features						
Energy efficient design	Yes	Yes	Yes	Yes	Yes	Yes
EcoControl function	-	-	Yes up to 20% energy saving* (automatic deactivation of idle peripherals)		Yes up to 25% energy saving*	
Surge protection	Surge protection device compliant with IEC 61643-1					
PowerLine compatibility	-	-	1 PLC-ready outlet	1 PLC-ready outlet	1 PLC-ready outlet	1 PLC-ready outlet
Battery						
Battery type	Replaceable sealed lead acid					
Automatic battery test	Yes	Yes	Yes	Yes	Yes	Yes
Cold start (start without mains)	Yes	Yes	Yes	Yes	Yes	Yes
Deep discharge protection	4 hours	4 hours	4 hours	4 hours	4 hours	4 hours
Battery replacement indicators	LED + audible alarm					
Battery runtime at 50% load	9 min	9 min	9 min	11 min	10 min	11 min
Battery runtime at 70% load	5 min	6 min	6 min	6 min	6 min	6 min
Communication						
Communication port	-	-	USB port (cable supplied)	USB port (cable supplied)	USB port (cable supplied)	USB port (cable supplied)
Software	-	-	Eaton UPS companion delivered as standard (compatible with: Windows 7/Vista/XP, Mac OS X, Linux)			
Line protection	Tel/Fax/Modem/Internet and Ethernet					
Standards						
Safety / EMC	IEC 62040-1, IEC 60950-1, IEC 62040-2, CB Report, CE mark					
Surge protection	IEC 61643-1					
Dimensions and weight						
Dimensions H x W x D	263 x 81 x 235 mm	263 x 81 x 235 mm	263 x 81 x 235 mm	263 x 81 x 235 mm	305 x 81 x 312 mm	305 x 81 x 312 mm
Weight	2.9 kg	3.6 kg	3.6 kg	4.1 kg	6.7 kg	7.8 kg
Customer Service & Support						
2 years warranty	Standard product exchange, including the battery; warranty for the connected computing equipment for an unlimited amount (EU countries)					
Warranty+	Optional 3-years warranty (depending on the country please visit www.eaton.eu/powerquality)					

* compared to previous generation UPS.

Part Numbers	500	650	650 USB	800 USB	1200 USB	1600 USB
French outlets (FR)	EL500FR	EL650FR	EL650USBFR	EL800USBFR	EL1200USBFR	EL1600USBFR
Schuko outlets (DIN)	EL500DIN	EL650DIN	EL650USBDIN	EL800USBDIN	EL1200USBDIN	EL1600USBDIN
IEC outlets	EL500IEC	EL650IEC	EL650USBIEC	EL800USBIEC	EL1200USBIEC	EL1600USBIEC
Accessories						
19" rack mounting kit (2U)	ELRACK	ELRACK	ELRACK	ELRACK	ELRACK	ELRACK
Wall mounting kit	ELWALL	ELWALL	ELWALL	ELWALL	ELWALL	ELWALL

FR DIN IEC

Eaton Ellipse PRO UPS

650/850/1200/1600 VA

Ellipse Pro range

LCD screen

Advanced protection for:

- Workstations
- Network devices
- Peripherals

Energy-saving power protection for workstations

- The LCD screen on the Eaton Ellipse PRO UPS provides clear information on its status and measurements. It also allows easy configuration of UPS settings.
- The EcoControl function, which automatically disables peripherals when the master device is turned off, can cut energy consumption by as much as 20%.
- Automatic Voltage Regulation (AVR) instantly corrects voltage fluctuations, meaning you can continue working through brownouts and overvoltages without using the batteries.
- The Ellipse PRO includes a high performance surge-protection device that complies with IEC 61643-1. This device also protects data connections such as Ethernet, internet and telephone lines.

Easy integration and installation

- The Ellipse PRO comes with either four (650/850 models) or eight (1200/1600 models) Schuko (DIN) or French (FR) sockets for easy connection to most common computer configurations with peripherals. IEC models are also available.
- The Ellipse PRO's extra-flat design makes it easy to install in any office environment: installation options include vertical box format, below the desk, horizontally under a monitor, 19" rack-mounted (optional 2U kit) and wall-mounted (optional kit).
- The Ellipse PRO is equipped with a USB port and comes complete with a USB cable and Eaton UPS Companion software that enables safe system shutdown, energy usage metering and easy configuration of UPS settings.

Complete peace of mind

- Three-year warranty including batteries.
- Unlimited warranty for connected computer equipment (EU countries and Norway only).
- Battery tests itself automatically at regular intervals, ensuring early detection when it's time for replacement.
- Easy-to-replace battery helps to extend UPS service life.

Eaton Ellipse PRO UPS

1 3 sockets with surge protection and backup, one socket with surge protection only
2 1 EcoControl socket
3 Telephone, internet and Ethernet protection
4 USB port
5 Replaceable batteries
6 Circuit breaker reset button

Eaton Ellipse PRO 650

Eaton Ellipse PRO 1600

1 4 sockets with surge protection and backup
2 4 sockets with surge protection
3 2 EcoControl sockets (1200/1600 models)
4 Telephone, internet and Ethernet protection
5 USB port
6 Replaceable batteries
7 Circuit breaker reset button

TECHNICAL SPECIFICATIONS

	650	850	1200	1600
Rating (kVA/kW)	650 VA / 400 W	850 VA / 510 W	1200 VA / 750 W	1600 VA / 1000 W
Electrical characteristics				
Technology	Line-interactive (AVR with booster + fader)			
Input voltage range	165 V - 285 V (adjustable to 150 V - 285 V)			
Output voltage	230 V (adjustable to 220 V - 230 V - 240 V)			
Frequency	50-60 Hz autoselect			
Connections				
Number of sockets	4	4	8	8
Sockets with surge protection and backup / Sockets with surge protection	3 / 1	3 / 1	4 / 4	4 / 4
Features				
User interface	LCD (UPS status and measurements, configuration of UPS settings)			
EcoControl (automatic deactivation of idle peripherals)	Yes, up to 15% energy saving	Yes, up to 15% energy saving	Yes, up to 20% energy saving	Yes, up to 20% energy saving
Surge protection	Surge protection device compliant with IEC 61643-1			
Batteries				
Typical backup times at 50 and 70% load*	9 / 5 mn	9 / 5 mn	9 / 5 mn	9 / 5 mn
Battery management	Automatic battery test, deep-discharge protection, cold-start capable, replaceable batteries			
Communication				
Communication port	USB port (cable supplied)	USB port (cable supplied)	USB port (cable supplied)	USB port (cable supplied)
Software	Eaton UPS Companion CD ROM (enables safe system shutdown, energy usage metering and configuration of UPS settings)			
Data line protection	Tel/fax/modem/internet and Ethernet			
Standards				
Safety and EMC	IEC/EN 62040-1, IEC/EN 62040 -2, CB report, CE mark			
Surge protection	IEC 61643-1			
Dimensions H x W x D and weight				
Dimensions H x W x D	260 x 82 x 285 mm	260 x 82 x 285 mm	275 x 82 x 390 mm	275 x 82 x 390 mm
Weight	6.6 kg	7.3 kg	9.9 kg	11.3 kg
Customer service and support				
Warranty	3 years warranty including batteries. Unlimited warranty for connected computer equipment (EU countries and Norway only).			

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

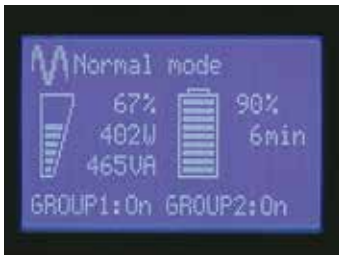
Parts Numbers	650	850	1200	1600
French sockets (FR)	ELP650FR	ELP850FR	ELP1200FR	ELP1600FR
Schuko sockets (DIN)	ELP650DIN	ELP850DIN	ELP1200DIN	ELP1600DIN
IEC outlets	ELP650IEC	ELP850IEC	ELP1200IEC	ELP1600IEC

Accessories				
19" rack-mounting kit (2U)	ELRACK	ELRACK	ELRACK	ELRACK
Wall-mounting kit	ELWALL	ELWALL	ELWALL	ELWALL

Eaton 5P UPS

650/850/1150/1550 VA

Available in tower and rack 1U format



Intuitive LCD

Ideal for protecting:

- Servers
- Networking
- Storage devices

Eaton 5P is an energy efficient line-interactive UPS with advanced LCD and energy metering features.

Manageability

- The new graphical LCD display provides clear information on the UPS's status and measurements on a single screen (in seven languages). Enhanced configuration capabilities are also available with easy-to-use navigation keys.
- The 5P can meter energy consumption providing kWh values through the LCD and Eaton's power management software.
- Load segment control enables prioritised shutdowns of non-essential equipment during outages in order to maximise battery runtime for critical devices. Load segment control can also be used to remotely reboot locked-up network equipment or to manage scheduled shutdowns and sequential start-ups.
- The 5P offers Serial and USB connectivity, plus an extra slot for an optional communication card (including SNMP/Web card or relay contact card). Eaton's Intelligent Power Software Suite compatible with all major OS including virtualisation software such as VMware and Hyper-V is included with each UPS.

Performance and efficiency

- Energy efficient UPS: With an optimised electrical design, the 5P provides up to 98% efficiency, reducing cooling and utility costs.
- Pure sinewave output: When operating in battery mode the 5P provides a high quality output signal for any sensitive equipment connected, such as active PFC (power factor corrected) servers.
- Adjustable tolerance and sensitivity: Users can maximise useful battery life by widening the input voltage window or adjustable input waveform sensitivity (via the LCD or software) to adapt the UPS to a specific environment (like Genset).

Availability and Flexibility

- The 5P is available in tower or Rack 1U format, providing unmatched energy density with up to 1.1 kW in only 1U.
- Stronger, longer battery life: Eaton ABM® battery management technology uses an innovative three-stage charging technique that extends batteries by up to 50%.
- Batteries can be hot-swapped without ever having to shut down connected equipment. With an optional, hot-swap maintenance bypass module, you can even replace the entire UPS.

Eaton 5P UPS

1 Graphical LCD:

- Clear information on UPS status and measurements
- Energy metering
- Enhanced configuration capabilities
- Available in seven languages

2 Panel for batteries replacement (Hot-swappable)

Eaton 5P 1550i UPS

3 One USB port + one serial port + remote ON/OFF and remote power OFF connector

4 8 IEC 10 A sockets (including two groups of controlled sockets)

5 Communication card slot

TECHNICAL SPECIFICATIONS

	650	850	1150	1550
Rating (VA/W)	650 VA/420 W	850 VA/600 W	1150 VA/770 W	1550 VA/1100 W
Technology	Tower or Rack 1U	Tower or Rack 1U	Tower or Rack 1U	Tower or Rack 1U
Electrical Characteristics				
Technology	Line-Interactive High Frequency (Pure Sinewave, Booster + Fader)			
Input voltage and frequency ranges without using batteries	160 V-294 V (adjustable to 150 V-294 V) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system), 40 Hz in low-sensitivity mode			
Output voltage and frequency	230 V Adjustable to 200V / 208V / 220V / 230V / 240V), 50/60 Hz +/- 0.1 % (autosensing)			
Connections				
Input	1 IEC C14 (10 A)			
Outputs Tower model	4 IEC C13 (10 A)	6 IEC C13 (10 A)	8 IEC C13 (10 A)	8 IEC C13 (10 A)
Outputs Rack 1U model	4 IEC C13 (10 A)	4 IEC C13 (10 A)	6 IEC C13 (10 A)	6 IEC C13 (10 A)
Switched Outlet Group	2 outlet groups			
Battery				
Typical backup times at 50 and 70% load*	9/6 mn	12/7 mn	12/7 mn	13/8 mn
Battery management	ABM or constant voltage charging method (user selectable), automatic battery test, deep discharger protection.			
Communication				
Communication Ports	1 USB port + 1 RS232 serial port and relay contacts (USB and RS232 ports cannot be used simultaneously), 1 mini terminal block for remote ON/OFF and Remote Power Off			
Communication Slot	1 slot for Network-MS card , ModBus-MS or Relay-MS cards			
Operating conditions, standards and approvals				
Operating temeprature	0 to 35°C	0 to 35°C	0 to 35°C	0 to 40°C
Noise level	<40 dB	<40 dB	<40 dB	<40 dB
Safety	IEC/EN 62040-1, UL 1778			
EMC, Performance	IEC/EN 62040 -2 , IEC/EN 62040-3 (Performance)			
Approvals	CE, CB report (TUV)			
Dimensions H x W x D / Weight				
Tower models	230*150*345 mm/7.8 kg	230*150*345 mm/10.4 kg	230*150*345 mm/11.1 kg	230*150*445 mm/15.6 kg
Rack 1U models	43.2(1U)*438*364 mm/8.6 kg	43.2(1U)*438*509 mm/13.8 kg	43.2(1U)*438*509 mm/14.6 kg	43.2(1U)*438*554 mm/19.4 kg
Customer Service & Support				
Warranty	3 years on electronics, 2 years on batteries			

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

Part Numbers	650	850	1150	1550
Tower	5P650i	5P850i	5P1150i	5P1550i
Rack 1U	5P650iR	5P850iR	5P1150iR	5P1550iR

vmware READY MANAGEMENT AND ORCHESTRATION

Eaton 5PX UPS

1500/2200/3000 VA

Rack/Tower versatile

Intuitive LCD display for ease
of configuration and management

Advanced protection for:

- Servers
- Switches
- Routers
- Storage devices

Exceptional efficiency, manageability and energy metering capabilities for IT managers

Manageability

- The new graphical LCD display provides clear information on the UPS's status and measurements on a single screen (in seven languages). Enhanced configuration capabilities are also available with easy-to-use navigation keys.
- For the first time in the industry the 5PX can meter energy consumption right down to the managed outlet groups. kWh values can be monitored using the LCD or Eaton's Intelligent Power Software Suite.
- Load segment control enables prioritised shutdowns of nonessential equipment to maximise battery runtime for critical devices. Load segment control can also be used to remotely reboot locked-up network equipment or to manage scheduled shutdowns and sequential start-ups.
- The 5PX offers Serial and USB connectivity, plus an extra slot for an optional communication card (including SNMP/Web card or relay contact card). Eaton's Intelligent Power Software compatible with all major OS including virtualization software such as VMware and Hyper-V is included with each UPS.

Performance and Efficiency

- With an optimised electrical design, the 5PX can provide up to 99% efficiency, reducing cooling and utility costs.
- With a power factor of 0.9, the 5PX delivers more real output power. It powers more servers than other UPSs with equivalent VA ratings and lower power factors. The 5PX is compatible with all modern IT equipment.
- When operating in battery mode the 5PX provides a high quality output signal for any sensitive equipment connected, such as active PFC (power factor corrected) servers.

Availability and Flexibility

- The 5PX is available in a rack/tower convertible version - pedestal and rail kits are included with all models at no extra charge.
- 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. With an optional, hot-swap maintenance bypass module, you can even replace the entire UPS.
- There is also the possibility to add more runtime with up to four external hot-swappable battery modules, able to run systems for hours if necessary. The additional battery modules are automatically recognised by the UPS.

Eaton 5PX UPS

1 Graphical LCD display :
- Clear information on UPS status and measurements
- Enhanced configuration capabilities
- Available in 7 languages

2 Panel for batteries replacement (Hot-swappable)

Eaton 5PX 3000i RT2U

3 1 USB port + 1 serial port + remote ON/OFF and remote power OFF inputs

4 External battery (EBM) connector

5 8 IEC 10 A + 1IEC 16 A sockets with energy metering (including 4 programmable sockets)

6 Communication card slot

TECHNICAL SPECIFICATIONS

	1500	2200	3000
Rating (VA/W)	1500 VA / 1350 W	2200 VA / 1980 W	3000 VA / 2700 W
Format	RT2U (tower / rack 2U)	RT2U (tower / rack 2U)	RT2U & RT3U
Electrical characteristics			
Technology	Line-Interactive High Frequency (Pure Sinewave, Booster + Fader)		
Input voltage and frequency ranges without using batteries	160 V-294 V (adjustable to 150 V-294 V) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system), 40 Hz in low-sensitivity mode		
Output voltage and frequency	230 V (+6/-10%) (Adjustable to 200 V / 208 V / 220 V / 230 V / 240 V), 50/60 Hz +/- 0.1% (autosensing)		
Connections			
Input	1 IEC C14 (10 A) socket	1 IEC C20 (16 A) socket	1 IEC C20 (16 A) socket
Outputs	8 IEC C13 (10 A)	8 IEC C13 (10 A) sockets 1 IEC C19 (16 A) socket	8 IEC C13 (10 A) sockets 1 IEC C19 (16 A) socket
Remotely controlled sockets	2 groups of 2 x IEC C13 (10 A)		
Additional outputs with HS MBP	4 FR/Schuko sockets or 3 BS sockets or 6 IEC 10 A sockets or terminal blocks (HW version)		
Additional outputs with FlexPDU	8 FR/Schuko sockets or 6 BS sockets or 12 IEC 10 A sockets		
Batteries			
Typical backup times for 50 and 70% load*			
5PX	19/11 mn	15/8 mn	14/9 mn
5PX + 1 EBM	90/54 mn	60/35 mn	66/38 mn
5PX + 4 EBM	285/180 mn	210/125 mn	213/121 mn
Battery management	ABM® and temperature compensated charging method (user selectable), automatic battery test, deep discharge protection, automatic recognition of external battery units.		
Interfaces			
Communication ports	1 USB port + 1 RS232 serial port and relay contacts (USB and RS232 ports cannot be used simultaneously) + 1 mini terminal block for remote ON/OFF and Remote Power Off		
Communications card slots	1 slot for NMC Minislot card (included in Netpack versions) or NMC ModBus/JBus or MC Contacts/Serial		
Operating conditions, standards and approvals			
Operating temperature	0 to 40°C		
Noise Level	< 45 dBA	< 45 dBA	< 50 dBA
Performance - Safety - EMC	IEC/EN 62040-1 (Safety), IEC/EN 62040-2 (EMC), IEC/EN 62040-3 (Performance),		
Approvals	CE, CB report, TÜV		
Dimensions W x D x H / Weight			
UPS Dimensions	441 x 522 x 86.2 (2U) mm	441 x 522 x 86.2 (2U) mm	441 x 647 x 86.2 (RT2U) mm 441 x 497 x 130.7 (RT3U) mm
UPS Weight	27.6 kg	28.5 kg	38.08 (RT2U) - 37.33 (RT3U)
Dimensions of EBM	same as UPS		
Weight of the EBM	32.8 kg	32.8 kg	46.39 (RT2U) - 44.26 (RT3U)
Customer Service & Support			
Warranty	3 years on electronics, 2 years on batteries		

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

Part Numbers	1500	1500 Netpack*	2200	2200 Netpack*	3000 (RT3U)	3000 Netpack* (RT2U)
UPS	5PX1500iRT	5PX1500iRTN	5PX2200iRT	5PX2200iRTN	5PX3000iRT3U	5PX3000iRTN
EBM	5PXEBM48RT	5PXEBM48RT	5PXEBM48RT	5PXEBM48RT	5PXEBM72RT3U	5PXEBM72RT2U

* Network Management Card included as standard in Netpack versions

Eaton 9SX Tower UPS

700/1000/1500/2000/3000 VA

9SX Tower model

9SX graphical LCD

Advanced protection for:

- IT, Networking, Storage and Telecom
- Infrastucture, Industrial and Medical

Online double conversion UPS
Successor of Eaton 9130 UPS

Performance and Availability

- Double-conversion topology. The Eaton 9SX constantly monitors power conditions and regulates voltage and frequency.
- 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.
- With a 0.9 power factor the 9SX delivers 28% more power than UPS in its class. It powers more servers than other UPSs with equivalent VA ratings and lower power factors.
- Stronger, longer battery life: Eaton ABM® battery management technology uses an innovative three-stage charging technique that extends battery life by up to 50%. 9SX also provides recommended replacement date for batteries.

Manageability

- The new graphical LCD provides clear information on the UPS's status and measurements on a single screen. Enhanced configuration capabilities are also available.
- The 9SX can meter energy consumption. kWh values can be monitored using the LCD or Eaton's Intelligent Power® Software.
- Load segment control enables prioritised shutdowns of nonessential equipment to maximise battery runtime for critical devices.
- 9SX offers Serial, USB connectivity, plus an extra slot for an optional communication card. Eaton's Intelligent Power® Software seamlessly integrates with leading virtualisation environments and cloud orchestrations tools.

Flexibility

- The tower is about the size of a modern, compact PC.
- More runtime can be added with up to 4 external hot-swappable battery modules, able to run systems for hours if necessary. The additional battery modules are automatically recognized by the UPS.

Eaton 9SX UPS

1 Remote Power Off connector (configurable)

2 Slot for Management card

3 External battery module (EBM) connector with automatic detection (RJ11)

4 Relay output

5 USB and serial ports

6 Input/Ouput connections

TECHNICAL SPECIFICATIONS

	700 VA	1000 VA	1500 VA	2000 VA	3000 VA	
Rating (VA/W)	700 VA/630W	1000 VA/900W	1500 VA/1350W	2000 VA/1800W	3000 VA/2700W	
Format	Tower					
Electrical characteristics						
Technology	On-line double-conversion with Power Factor Correction (PFC) system					
Nominal voltage	200/208/220/230/240V					
Input voltage range	190-276V without derating (up to 120-276V with derating)			200-276V without derating (up to 140-276V with derating)		
Input frequency range/THDI	40-70Hz, 50/60Hz autoselection, frequency converter mode					
Connections						
Input	1 IEC C14 (10A)	1 IEC C14 (10A)	1 IEC C14 (10A)	1 IEC C14 (10A)	1 IEC C20 (16A)	
Outputs	6 IEC C13 (10A) sockets	6 IEC C13 (10A) sockets	6 IEC C13 (10A) sockets	8 IEC C13 (10A) sockets	8 IEC C13 (10A) sockets + 1 IEC C19 (16A) socket	
Switched Outlet Group	2 outlet groups					
Batteries						
Typical backup times* (minutes)/load	300W	500W	800W	1200W	1800W	2500W
9SX 700	14	7,5				
9SX 1000	24	14	7			
9SX 1000 + 1 EBM/+ 4 EBM	90/320	56/200	33/120			
9SX 1500	39	23	12	7		
9SX 1500 + 1 EBM/+4 EBM	142/520	85/310	50/179	31/115		
9SX 2000	62	36	22	13	17	
9SX 2000 + 1 EBM/+4 EBM	280/1050	165/620	100/390	65/250	68/255	
9SX 3000	78	45	29	17	10	6
9SX 3000 + 1 EBM/+4 EBM	290/1100	175/630	108/421	68/255	45/168	30/112
Battery management	ABM® and Temperature compensated charging method (user selectable), automatic battery test, deep discharge protection, automatic recognition of external battery units.					
Communication						
Communication ports	1 USB port + 1 serial RS232 port + 1 mini-terminal block for Remote Power Off + 1 mini-terminal block for Output relay					
Communication slot	1 slot for Network-M2, Network-MS, ModBus-MS or Relay-MS cards					
Operating conditions, standards and approvals						
Operating temperature	0 to 40°C					
Typical noise level	40dB	41dB	43dB	45dB	45dB	
Safety	IEC/EN 62040-1, UL 1778, CSA 22.2					
EMC	IEC/EN 62040 -2 , FCC Class B, CISPR22 Class B					
Approvals & marking	CE /CB report (TUV) / cULus / EAC / RCM / BIS / KCC					
Dimensions H x W x D in mm/Weight						
UPS	252x160x357/11.5kg	252x160x387/14.8kg	252x160x437/18.5kg	346x214x412/33.3kg	346x214x412/33.4kg	
EBM		252x160x387/19kg	252x160x387/24.5kg	346x214x412/48.7kg	346x214x412/48.7kg	
Customer service and support						
Warranty	2 years					

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

Parts numbers	9SX 700 VA	9SX 1000 VA	9SX 1500 VA	9SX 2000 VA	9SX 3000 VA
UPS Tower	9SX700I	9SX1000I	9SX1500I	9SX2000I	9SX3000I
EBM Tower	-	9SXEBM36T	9SXEBM48T	9SXEBM96T	9SXEBM96T
2m battery connection cable	-	EBMCBL36T	EBMCBL48T	EBMCBL96T	EBMCBL96T

vmware READY MANAGEMENT AND ORCHESTRATION

Microsoft Partner Network

Eaton 9PX UPS
1000–3000W

3000W in only 2U!

VA = Watt

Advanced protection for:

- Small and Medium Datacentre
- IT, Networking, Storage and Telecom
- Infrastucture, Industrial and Medical

Energy efficient power protection

Performance and efficiency

- 9PX is the first UPS in its class to provide Unity power factor (VA=W). It delivers 11% more power than any other UPS as well as powering more servers with equivalent VA ratings and lower power factors.
- Energy Star qualified, the 9PX provides the highest efficiency level to reduce energy and cooling costs.
- Double conversion topology. The Eaton 9PX constantly monitors power conditions and regulates voltage and frequency.
- With a versatile Rack/Tower form factor, the 9PX is the most compact solution delivering up to 3000W in only 2U.

Manageability

- The graphical LCD display provides clear information on the UPS's status and measurements on a single screen. Enhanced configuration capabilities are also available.
- 9PX can meter energy consumption right down to the managed outlet groups. kWh values can be monitored using the LCD or Eaton's Intelligent Power™ Software.
- Load segment control enables prioritised shutdowns of non-essential equipment to maximize battery runtime for critical devices.
- 9PX offers Serial and USB connectivity, plus an extra slot for an optional communication card. Eaton's Intelligent Power Software seamlessly integrates with leading virtualisation environments and cloud orchestrations tools.

Availability and flexibility

- 9PX UPS is available in RT2U format (optimised for rack mounting) or RT3U (for tower or short-depth racks), pedestal and rail kits are included with all models.
- The internal bypass allows service continuity in case of internal fault, a maintenance bypass is also available (as standard on HotSwap version) for easy replacement of the UPS.
- Stronger, longer battery life: Eaton ABM® battery management technology uses an innovative three-stage charging technique that extends battery life by up to 50%.
- More runtime can be added with up to 4 external hot-swappable battery modules, able to run systems for hours if necessary.

Powering Business Worldwide

Eaton 9PX UPS technical specifications

1 Graphical LCD display :
- Clear information on UPS status and measurements
- Enhanced configuration capabilities

2 Panel for batteries replacement (Hot swappable)

3 Slot for Management card (Network card delivered as standard on netpack version)

Eaton 9PX 3000VA

4 Outputs: 8 x IEC 10A + 2 x IEC 16A with energy metering (including 2 programmable groups)

5 USB port,1 serial port, Remote ON/OFF, Remote power OFF and Relay output

6 External battery (EBM) connector

TECHNICAL SPECIFICATIONS

	1000	1500	2200	3000VA		
Rating (VA/W)	1000VA/1000W	1500VA/1500W	2200VA/2200W	3000VA/3000W		
Format	RT2U (tower/rack 2U)		RT2U (tower/rack 2U) and RT3U (tower/rack 3U)			
Electrical characteristics						
Technology	On-line double conversion with Power Factor Correction (PFC) system					
Nominal voltage	200/208/220/230/240V					
Input voltage range	176-276V without derating (up to 100-276V with derating)					
Input frequency range	40-70Hz, 50/60Hz autoselection, frequency converter mode					
Efficiency	up to 91.5% in online mode (up to 97.5% in Hi-efficiency mode)	up to 92.5% in online mode (up to 97.5% in Hi-efficiency mode)	up to 93.5% in online mode (up to 98% in Hi-efficiency mode)	up to 94% in online mode (up to 98% in Hi-efficiency mode)		
Connections						
Input	1 IEC C14 (10A)		1 IEC C20 (16A) or terminal block on HotSwap MBP HW (Hard-Wired)			
Outputs	8 IEC C13 (10A) sockets		8 IEC C13 (10A) sockets + 2 IEC C19 (16A) sockets			
Outputs on HotSwap models			4 FR/Schuko sockets or 3 BS sockets or 6 IEC 10A sockets or terminal blocks (HW version)			
Switched outlet group	2 outlet groups					
Batteries						
Typical backup times*	300W	500W	800W	1200W	1800W	2500W
9PX 1000	28	16	9			
9PX 1000 + 1 EBM/+4 EBM	134/530	79/316	47/188			
9PX 1500	38	23	13	7		
9PX 1500 + 1 EBM/+4 EBM	143/536	86/319	52/192	32/120		
9PX 2200	43	25	15	9	5	
9PX 2200 + 1 EBM/+4 EBM	206/818	123/491	74/297	47/189	29/118	
9PX 3000	60	36	22	13	7	4
9PX 3000 + 1 EBM/+4 EBM	221/824	135/504	83/307	52/194	33/122	22/82
Battery management	ABM® & temperature compensated charging method (user selectable), automatic battery test, deep discharge protection, automatic recognition of external battery units					
Communication						
Communication ports	1 USB port + 1 serial RS232 port + 1 mini-terminal block for remote ON/OFF + 1 mini-terminal block for remote power off + 1 mini-terminal block for output relay					
Communication slot	1 slot for Network-MS card (included in netpack versions), ModBus-MS or Relay-MS cards					
Operating conditions, standards and approvals						
Operating temeprature	0 to 40°C					
Typical noise level	35dB		40dB			
Safety	IEC/EN 62040-1, UL 1778, CSA 22.2					
EMC	IEC/EN 62040 -2, FCC Class B, CISPR22 Class B					
Approvals & markings	CE /CB report (TUV) / cULus / EAC /RCM / KC / Energy Star					
Dimensions H x W x D in mm/ Weight						
UPS	86.5*440*450/17.4kg	86.5*440*450/18.9kg	2U version: 86.5*440*605/25kg 3U version: 130*440*485/24.5kg	2U version: 86.5*440*605/27.6kg 3U version: 130*440*485/27.4kg		
EBM	86.5*440*450/29.8kg		2U version: 86.5*440*605/39.2kg 3U version: 130*440*485/38.2kg			
Customer service and support						
Warranty	3 years on electronics, 2 years on batteries					

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

Parts numbers*	9PX 1kVA	9PX 1.5kVA	9PX 2.2kVA	9PX 3kVA
UPS RT3U			9PX2200IRT3U	9PX3000IRT3U
UPS RT2U	9PX1000IRT2U	9PX1500IRT2U	9PX2200IRT2U	9PX3000IRT2U
UPS RT3U with HotSwap MBP			IEC: 9PX2200IRTBP HW: 9PX2200IRTBPH FR: 9PX2200IRTBPF DIN: 9PX2200IRTBPD BS: 9PX2200IRTBPB	IEC: 9PX3000IRTBP HW: 9PX3000IRTBPH FR: 9PX3000IRTBPF DIN: 9PX3000IRTBPD BS: 9PX3000IRTBPB
UPS RT2U with Network card	9PX1000IRTN	9PX1500IRTN	9PX2200IRTN	9PX3000IRTN
EBM	9PXEBM48RT2U		2U: 9PXEBM72RT2U 3U: 9PXEBM72RT3U	
2m battery connection cable	EBMCBL48		EBMCBL72	
Battery integration system	BINTSYS			

*All 9PX UPS and EBM are delivered with rack kit

Eaton 9PX UPS

5/6/8/11 kVA

Rack/Tower versatile

9PX 1:1 is an Energy Star® qualified UPS

9PX 11 kVA with maintenance bypass

Advanced protection for:

- Small and Medium Datacentre
- IT, Networking, Storage and Telecom
- Infrastucture, Industrial and Medical

Watch 9PX's video

Energy efficient power protection

Performance and Efficiency

- Double-conversion topology. The Eaton 9PX constantly monitors power conditions and regulates voltage and frequency.
- With up to 95% efficiency in online double-conversion mode and 98% in high-efficiency mode the 9PX provides the highest efficiency level in its class to reduce energy and cooling costs.
- With a 0.9 power factor the 9PX delivers 28% more power than any UPS in its class. It powers more servers than other UPSs with equivalent VA ratings and lower power factors.
- With a RT (Rack/tower) versatile form factor the 9PX is the most compact solution in its class delivering up to 5400 W in only 3U and 10 kW in only 6U.

Manageability

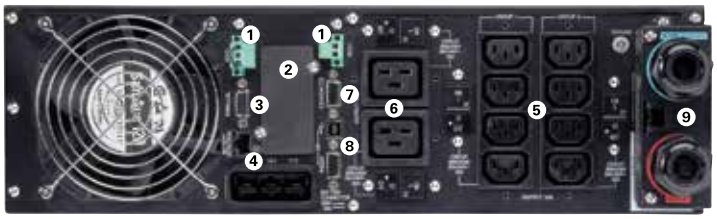
- The new graphical LCD provides clear information on the UPS's status and measurements on a single screen (in seven languages). LCD display position can be adjusted to offer the best viewable angle for tower and rack usage.
- The 9PX can meter energy consumption. kWh values can be monitored using the LCD or Eaton's Intelligent Power Software.
- Load segment control enables prioritised shutdowns of nonessential equipment to maximise battery runtime for critical devices. It can also be used to remotely reboot locked-up network equipment or to manage scheduled shutdowns and sequential start-ups.
- The 9PX offers Serial, USB and relay connectivity, plus an extra slot for an optional card (Network card delivered as standard on Netpack version). Eaton's Intelligent Power Software is compatible with all major OS including virtualisation software such as VMware and Hyper-V is included with each UPS.

Availability and Flexibility

- The internal bypass allows service continuity in case of internal fault, a maintenance bypass is also available (as standard on HotSwap version) for easy replacement of the UPS without powering down critical systems.
- The 9PX can be paralleled to achieve twice the power of unitary product using HotSync technology, without extra cost on the initial purchase.
- Stronger, longer battery life: Eaton ABM® battery management technology uses an innovative three-stage charging technique that extends battery life by up to 50%.
- More runtime can be added with up to 12 external hot-swappable battery modules, able to run systems for hours if necessary. The additional battery modules are automatically recognised by the UPS.

Eaton 9PX UPS

1 Remote Off/On and Remote Power Off connectors
2 Slot for Network-MS, ModBus-MS or Relay-MS cards
3 Parallel operation port (DB15)
4 External battery module (EBM) connector with automatic detection (RJ11)



Eaton 9PX 6 kVA 1:1

5 8 IEC 10 A sockets (2 groups of 4 manageable sockets) with cable retention system
6 2 IEC 16 A sockets with cable retention system
7 DB 9 with output contacts
8 USB and serial ports
9 Input/Ouput connection

TECHNICAL SPECIFICATIONS

	5 kVA 1:1	6 kVA 1:1	6 kVA 3:1	8 kVA 1:1 or 3:1	11 kVA 1:1 or 3:1
Rating (kVA/kW)	5 kVA/4.5 kW	6 kVA/5.4 kW	6 kVA/5.4 kW	8 kVA/7.2 kW	11 kVA/10 kW
Electrical Characteristics					
Technology	On-line double-conversion with Power Factor Correction (PFC) system				
Input voltage	200/208/220/230/240 V 1:1		200/208/220/230/240 V/250 V 1:1, 380/400/415 3:1		
Input voltage range	176-276 V without derating (up to 100-276 V with derating) 1:1, 305 V-480 V without derating (up to 175 V-480 V with derating) 3:1				
Output voltage/THDU	200/208/220/230/240 V +/– 1%; THDU <2%				
Input frequency range/THDI	40-70 Hz, 50/60 Hz autoselection, frequency converter as standard, THDI < 5%				
Efficiency	Up to 94% in Online mode, 98% in Hi-Efficiency mode			Up to 95% in Online mode, 98% in Hi-Efficiency mode	
Short circuit current	90 A	90 A	90 A	120 A	150 A
Overload capacity	102–110% : 120 s, 110–125%: 60 s, 125–150%: 10 s, >150%: 500 ms		102–110% : 120 s, 110–125%: 60 s, 125–150%: 10 s, >150%: 900 ms		
Connections					
Input	Terminal block (up to 10 mm²)		Terminal block (up to 16 mm²)		
Outputs	Terminal block + 2 controlled groups of 4 IEC C13 (10 A) + 2 IEC C19 (16 A)		Terminal block		
Outputs with HotSwap Maintenance Bypass	Terminal block + 3 IEC C13 (10 A) + 2 IEC C19 (16 A)		Terminal block + 4 IEC C19 (16 A)		
Batteries					
Typical backup times at 50 and 70% load*					
9PX	13/10 min	11/8 min	30/20 min	20/15 min	13/9 min
9PX + 1 EBM	60/40 min	48/34 min	70/45 min	48/32 min	32/21 min
9PX + 4 EBM	220/150 min	170/120 min	210/140 min	140/100 min	100/70 min
Battery management	ABM® and Temperature compensated charging method (user selectable), automatic battery test, deep discharge protection, automatic recognition of external battery units.				
Communication					
Communication ports	1 USB port, 1 RS232 serial port (USB and RS232 ports cannot be used simultaneously), 4 dry contacts (DB9), 1 mini terminal block for remote On/Off and 1 for remote power Off, 1 DB15 for parallel operation.				
Communication slot	1 slot for Network-MS card (included in Netpack versions), ModBus-MS or Relay-MS cards.				
Operating conditions, standards and approvals					
Operating temperature	0 to 40°C continuous				
Noise level	<45 dB	<45 dB	<48 dB	<48 dB	<50 dB
Safety	IEC/EN 62040-1, UL 1778 (1:1 version)				
EMC, performance	IEC/EN 62040 -2, FCC Class A (1:1 version), IEC/EN 62040-3 (Performance)				
Approvals	CE, CB report (TUV), UL (1:1 version, 5 & 6kVA only)				
Dimensions H x W x D/Weight					
UPS dimensions	440(19 ")*130(3U)*685 mm	440(19 ")*130(3U)*685 mm	440(19 ")*260(3U+3U)*700 mm	440(19 ")*260(3U+3U)*700 mm	440(19 ")*260(3U+3U)*700 mm
UPS weight	48 kg	48 kg	88 kg	84 kg (1:1), 88 kg (3:1)	86 kg (1:1), 88 kg (3:1)
EBM dimensions	440(19 ")*130(3U)*645 mm	440(19 ")*130(3U)*645 mm	440(19 ")*130(3U)*680 mm	440(19 ")*130(3U)*680 mm	440(19 ")*130(3U)*680 mm
EBM weight	68 kg	68 kg	65 kg	65 kg	65 kg
Power module dimensions	-	-	440(19 ")*130(3U)*700 mm	440(19 ")*130(3U)*700 mm	440(19 ")*130(3U)*700 mm
Power module weight	-	-	23 kg	19 kg (1:1), 23 kg (3:1)	21 kg (1:1), 23 kg (3:1)
Customer Service and Support					
Warranty	2 years warranty				

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

Parts Numbers	9PX 5 kVA 1:1	9PX 6 kVA 1:1	9PX 8 kVA 1:1	9PX 11 kVA 1:1	9PX 6 kVA 3:1	9PX 8 kVA 3:1	9PX 11 kVA 3:1
UPS with HotSwap Maintenance Bypass	9PX5KiBP	9PX6KiBP	9PX8KiBP	9PX11KiBP	9PX6KiBP31	9PX8KiBP31	9PX11KiBP31
UPS with Network Card and Rack Kit	9PX5KiRTN	9PX6KiRTN	–	–	–	–	–
UPS with HotSwap MBP, Network Card and Rack Kits	–	–	9PX8KiRTNBP	9PX11KiRTNBP	9PX6KiRTNBP31	9PX8KiRTNBP31	9PX11KiRTNBP31
EBM	9PXEBM180	9PXEBM180	9PXEBM240	9PXEBM240	9PXEBM240	9PXEBM240	9PXEBM240
Power Module	–	–	9PX8KiPM	9PX11KiPM	9PX6KiPM31	9PX8KiPM31	9PX11KiPM31
HotSwap Maintenance Bypass	MBP6Ki	MBP6Ki	MBP11Ki	MBP11Ki	MBP11Ki31	MBP11Ki31	MBP11Ki31
9PX ModularEasy (paralleling kit)	9PXMEZ6Ki	9PXMEZ6Ki	9PXMEZ11Ki	9PXMEZ11Ki	–	–	–
Supercharger with Rack Kit	–	–	SC240RT	SC240RT	SC240RT	SC240RT	SC240RT
1.8m Battery Connection Cable	EBMCBL180	EBMCBL180	EBMCBL240	EBMCBL240	EBMCBL240	EBMCBL240	EBMCBL240

Accessories	Rack kit: 9RK, Transformer (Single Phase): TFMR11Ki, Battery Integration System: BINTSYS

9PX Parallel*	9PX 10 kVA 1:1 (5 kVA redundant)	9PX 12 kVA 1:1 (6 kVA redundant)	9PX 16 kVA 1:1 (8 kVA redundant)	9PX 22 kVA 1:1 (11 kVA redundant)
	9PXM10KiRTN	9PXM12KiRTN	9PXM16KiRTN	9PXM22KiRTN

*9PX Parallel system includes 2 x 9PX, ModularEasy (Parallel kit), rail kits and network cards

Eaton 9155 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 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

- Patented Powerware HotSync® 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 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 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 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)	91%
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
Nominal voltage rating (configurable)	220, 230, 240 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	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	9155-8-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	9155-8-N-33-64x9Ah	8 kVA / 7.2 kW	33 min	1214x305x702 mm	275 kg
1022484	9155-10-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	9155-10-N-25-64x9Ah	10 kVA / 9 kW	25 min	1214x305x702 mm	275 kg
1022487	9155-12-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	9155-12-N-20-64x9Ah	12 kVA / 10.8 kW	20 min	1214x305x702 mm	275 kg
1022490	9155-15-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	9155-15-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	Check technical specifications	817x305x699 mm	195 kg
1022562	9X55-BAT5-96x7Ah	3x32x7 Ah		1214x305x699 mm	310 kg

Eaton 9155 UPS

20 - 30 kVA

Advanced power protection for:

- Financial services
- Medium size servers and computer
- 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 9155 delivers an efficiency of up to 93%.
- 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.
- The UPS enables optimal power protection for modern 0,9 p.f. rated IT equipment without the need to oversize.

True reliability

- Patented Powerware HotSync® 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 9155 provides an orderly network shutdown in an event of extended power outage. If required, the 9155 can also be integrated to network management, industrial automation and building management systems.

Cost savings and sustainability

- The 9155 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 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 UPS 20-30 kVA

TECHNICAL SPECIFICATIONS

UPS output power rating (0,9 p.f.)		
kVA	20	30
kW	18	27

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, 230, 240 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 (32x12 V, 216 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, 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 3-phase input

Part number	Description	Rating	Back-up (pf. 0.7)	Dimensions (HxWxD)	Weight
1026598	9155-20-N-5-1x9Ah-MBS	20 kVA / 18 kW	5 min	1684x494x762 mm	300 kg
1026599	9155-20-N-13-2x9Ah-MBS	20 kVA / 18 kW	13 min	1684x494x762 mm	400 kg
1026600	9155-20-N-22-3x9Ah-MBS	20 kVA / 18 kW	22 min	1684x494x762 mm	500 kg
1026601	9155-20-N-31-4x9Ah-MBS	20 kVA / 18 kW	31 min	1684x494x762 mm	600 kg
1026602	9155-30-N-7-2x9Ah-MBS	30 kVA / 27 kW	7 min	1684x494x762 mm	400 kg
1026603	9155-30-N-13-3x9Ah-MBS	30 kVA / 27 kW	12 min	1684x494x762 mm	500 kg
1026604	9155-30-N-20-4x9Ah-MBS	30 kVA / 27 kW	20 min	1684x494x762 mm	600 kg

9155 20-30 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

12/24/36/48/60 kW

Designed for data centres – to ensure maximum uptime and efficiency

Simply scalable

- Eaton BladeUPS provides scalable double-conversion backup power
- BladeUPS is designed for the data centre -to work in harmony with your servers and IT equipment to ensure maximum uptime and maximum efficiency
- Scalable architecture enables you to design, scale and grow your data centre as your demand grows.
- BladeUPS provides from 12 kW to 60 kW N+1 mounted in a single IT rack enclosure, with multiple power distribution options
- BladeUPS delivers an industry-leading 98% efficiency across the operating range, resulting in cooler operating conditions and less heat dissipation

Highly flexible

- BladeUPS is extremely flexible and supports multiple configurations including power protection in each rack, centralised protection, zone protection or hybrid as required
- If your needs change or need to move your IT equipment, simply redeploy and reuse BladeUPS as single of parallel units elsewhere
- Multiple external batteries can be added to increase runtime
- BladeUPS has multiple power distribution options including the Rack Power Module (RPM), ePDUs or hardwired. The 3U RPM delivers single-phase power and can be deployed in the same rack as the UPS and IT equipment.

Highly efficient

- Optimize your operational expenditure - Latest high efficiency technologies provide 98% efficiency, with 65% less heat dissipation to minimise your operational costs and reduce your carbon footprint
- A 60 kW N+1 solution could save over 20,000 in 5 years in energy costs alone
- The small footprint of BladeUPS allows extra space for IT equipment in the rack and data centre.
- Due to the low heat dissipation, air conditioning requirements are reduced by up to a third and BladeUPS can be located close to IT equipment.
- Utilises Eaton's Advanced Battery Management system to prolong battery life by up to 50%

Advanced power protection for:

- Small, medium and large data centres
- Blade servers
- Network environments
- Telephony and VoIP equipment
- Networking applications such as IPTV, security
- Storage devices: RAID, SAN

TECHNICAL SPECIFICATIONS

General	
Power Rating	12 kW per UPS module
Efficiency	Up to 98.6%
Heat Dissipation	371 W/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 m (3300 ft ASL)

Input	
Input Voltage	400 Vac
Voltage Range	400 V: 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	400 V: 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% load 4.7 minutes at 100% 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% load, >1 hour at 50% 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
EMAB22	ePDU G3 - Managed (0U (C20 16A 1P) 20xC13 4xC19) use in addition to RPM
EMOB22	ePDU G3 - Metered Outlet (0U(C20 16A 1P) 20xC13 4xC19) use in addition to RPM

Eaton 93E UPS

15/20/30/40/60/80 kVA

Eaton 93E 15-80 kVA

Advanced power protection for:

- Financial services
- Building management
- Telecommunications
- Industrial automation equipment
- Healthcare
- Government
- Data centres

Double conversion UPS

Simply effective power protection

- 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 93E UPS delivers an efficiency of up to 98%.
- Active power factor correction (PFC) provides unbeatable 0,99 input power and <5% 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

- Eaton's patented HotSync technology makes it possible to parallel up to 4 UPSs in capacity or in redundancy.
- ABM testing and charging cycle helps you to prevent battery problems and in addition lessens corrosion prolonging battery servicelife up to 50%.
- Equipped with a backfeed contactor – no need for additional installments

Extensive configurability

- The 93E offers up to 30% smaller footprint compared to competitive UPS offerings.
- 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

- A new technical platform used in Eaton´s three-phase UPS products guarantee easy upgrades, low MTTR, similarity on service trainings and documentation, thus lowering total cost of ownership.
- Equipped with internal maintenance bypass for safe and easy serviceability.
- A range of service agreement options can be easily customized for customers' needs and budget.

Eaton 93E UPS 15-80 kVA

TECHNICAL SPECIFICATIONS

Power		
UPS output power rating (0.9 p.f)	15 kVA/13.5 kW 30 kVA/27 kW 60 kVA/54 kW	20 kVA/18 kW 40 kVA/36 kW 80 kVA/72 kW
Topology	Double-conversion online UPS	
Operating frequency	50/60 Hz (40 to 72 Hz)	
Input power factor	>0.99 typical	
Input current distortion	≤5% THD	
Electrical input		
Input wiring	3 ph + neutral	
Nominal input volatge	220/380, 230/400, 240/415 V 50/60 Hz	
Input voltage range	-15%, +20% from nominal (400 V) at 100% load	
Power walk-in	Yes	
Internal backfeed protection	Yes	
Electrical output		
Internal maintenance bypass	Yes	
Output wiring	3 ph + neutral	
Nominal voltage rating (configurable)	220/380, 230/400, 240/415 V 50/60 Hz	
Output voltage regulation	±1% Static; <5% dynamic at 100% resistive load change, <20 ms response time	
Overload on inverter	10 min 102-125% load 1 min 126-150% load 500 ms >151% load	
Overload when bypass available	Continuous <115% load, 20 ms 1000% peak current. **Note!** External bypass fuses may limit the overload capability	
Battery		
Battery	384 V (32 x 12 V, 192 cells) for 15-40 kVA with internal batteries 384 V - 480 V for 15-80 kVA with external batteries	
Charging method	ABM Cyclic Charging	
Charging current/Model	15 20 30 40 60 80 kVA	
Default	3.5 3.5 5.2 7 10.4 15.6 A	
Max*	5.3 5.3 8 10.6 16 24 A	

*May be limited by maximum UPS input current rating

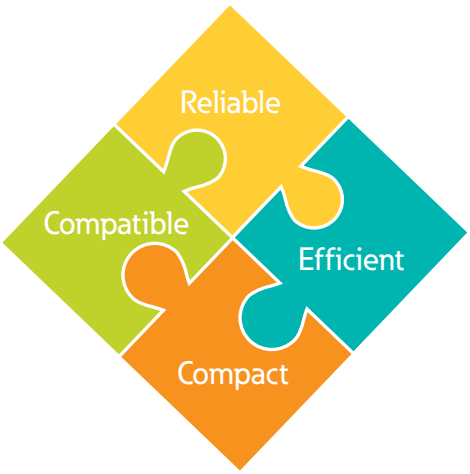
General		
Efficiency	Up to 98% High-efficiency mode Up to 94% Double-conversion mode	
Parallel technology	Powerware Hot Sync® Technology	
Dimensions W x D x H (mm)	500 x 710 x 960 500 x 710 x 1230 500 x 710 x 1500 600 x 800 x 1876	15-20 kVA (with internal battery) 30 kVA (with internal battery) 40 kVA (with internal battery) 60-80 kVA
Cabinet rating	IP20 with standard washable dust filters	
Weights without internal battery	72 kg 88 kg 120 kg 202 kg 245 kg	15/20 kVA 30 kVA 40 kVA 60 kVA 80 kVA
Weights with internal battery	272 kg 376 kg 490 kg	15/20 kVA 30 kVA 40 kVA

Communications	
Display	Graphical LCD with blue backlight
LEDs	(4) LEDs for notice and alarm
Audible alarms	Yes
Communication ports	(1) RS-232, (1) USB, (1) EPO
Communication slots	(2) Mini-slot communication bays
Relay inputs/outputs	Three Signal inputs
Environmental	
Operating temperature	0 °C to +40 °C
Storage temperature	-25 °C to +55 °C without batteries +15 °C to +25 °C with batteries
Relative humidity	5-95%, non-condensing
Audible noise	15-20 kVA ≤55 dBA at 1m typical 30-40 kVA ≤62 dBA at 1m typical 60-80 kVA ≤65 dBA at 1m typical
Altitude	1000 m without derating (max 2000 m)
Compliance with standards	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2, EMC Category C3
Performance	IEC 62040-3
Quality	ISO 9001: 2000 and ISO 14001:1996
Accessories	
External battery cabinets	
External maintenance bypass switch	
MiniSlot connectivity (Web/SNMP, ModBus/Jbus, Relay)	
Environmental monitoring probe	

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

Eaton 93E UPS - Generation 2

100-200 kVA



Your versatile UPS ideal for:

- Industrial automation equipment
- Healthcare
- Small and Medium data centers
- Financial services
- Building management
- Telecommunications
- Government

Practical and versatile power protection ready to drive your goals.

Reliable

- Equipped with a backfeed contactor – no need for an additional installation.
- Equipped with an internal maintenance bypass for safe and easy serviceability.
- HotSync® technology makes it possible to parallel up to 4 UPSs for increased capacity or redundancy allowing maximum availability.
- Advanced Battery Management testing and charging cycle preserves and prolongs battery service life.
- Eaton's Intelligent Power Manager® software allows you to remotely monitor and manage your UPS.
- A multilingual graphical LCD display easily provides the UPS status.

Efficient

- One of the most energy-efficient UPSs in its class with up to 96.1% efficiency in double conversion mode and up to 99.3% efficiency in High-efficiency mode.

Compatible

- Optimized for protecting modern 0.9 p.f. rated IT equipment without the need to oversize.
- Enhanced compatibility with generators and with other critical equipment in the same network via active power factor correction (PFC) that provides 0.99 input power factor and <3% ITHD.

Compact

- Up to 60% smaller than similar competitive solutions.
- 600 mm wide UPS cabinet enables seamless "in-row" integration with IT racks.

Eaton 93E G2 UPS 100-200 kVA

Technical specifications

Power	
UPS output power rating (0.9 p.f)	100 120 160 200 kVA 90 108 144 180 kW
Inverter/rectifier topology	Transformer-free 3-level IGBT with PWM
Distributed paralleling with Hot Sync technology	Up to 4 units
Efficiency in double conversion mode	Up to 96.1%
Efficiency in High-Efficiency mode (HE)	Up to 99.3%
UPS dimensions (Width x Depth x Height)	600 x 800 x 1800 (100-120 kVA)
	600 x 830 x 1880 (160-200 kVA)
Installed weight (max)	283 kg - 100 kVA
	311 kg - 120 kVA
	427 kg - 160/200 kVA
Audible noise	100-120 kVA ≤ 62 dB , 160-200 kVA ≤ 70 dB
Operating altitude	1000 m without derating (max 2000 m)
Ambient operating temperature	0°C - 40°C
Degree of protection	IP 20

Input	
Input wiring	3ph + N + PE
Nominal voltage and frequency rating	380/400/415 V 50/60 Hz
Input voltage tolerance, with 400 V nominal voltage	-15% / +20% with rated linear load
Input frequency tolerance	40 -72 Hz
Input Power Factor	0.99
Input ITHD	<3%
Power walk-in	Yes
Internal backfeed Protection	Yes, for rectifier and bypass lines

Output	
Output wiring	3ph + N + PE
Nominal voltage and frequency rating	380/400/415 V 50/60 Hz
Output UTHD	<2% (linear load)
Output power factor	0.9
Permitted load power factor	0.7 lag to 0.9 lead
Overload capacity on inverter	102 - 125% rated load 10 minutes
	126 - 150% rated load 1 minute
	>150% rated load 500 ms
Overload capacity on bypass	Continuous <115% load, 20 ms 1000% peak current. **Note:** External bypass fuses may limit the overload capability.

Battery	
Battery type	VRLA
Charging method	ABM technology or Float
Battery nominal voltage (lead-acid)	432 V (36 x 12 V, 216 cells) 456 V (38 x 12 V, 228 cells) 480 V (40 x 12 V, 240 cells)
Charging current/Model Default Max *	100 120 160 200 kVA 20 20 40 40 A 40 40 80 80 A

*Maybe limited by the maximum UPS input current rating and the load level

Accessories
External battery cabinets, Input switch up to 120 kVA, Internal maintenance bypass switch up to 120 kVA, External maintenance bypass switch up to 160 kVA, MiniSlot connectivity (Web/SNMP, ModBus/Jbus, Relay, Gigabit Network card)

Communication	
Display	Graphical LCD with blue backlight
LEDs	(4) LEDs for notice and alarm
Audible alarms	Yes
Software	Eaton Intelligent Power Manager
Communication ports	(1) RS-232, (1) USB, (1) EPO, (3) Building alarm (Signal inputs)
Communication slots	(2) Mini-slot communication bays

Compliance with Standards	
Safety (CB certified)	EC 62040-1
EMC	IEC 62040-2, EMC Category C3
Performance	IEC 62040-3
RoHS	EU directive 2011/65/EU
WEEE	EU directive 2012/19/EU

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

Eaton 93PS UPS

8-10 kW

Lowest total cost of ownership (TCO)

- Highest efficiency in its power range with above 96% efficiency in double conversion mode and up to 99% efficiency in Energy Saver System mode
- Scalable by paralleling up to 4 units
- Smallest footprint on the market, footprint only 0.25 m²
- Unity power factor (1.0), providing more real power than many of its rivals

Maximum availability

- HotSync® patented load-sharing technology enables parallel operation of units without communication or loadshare signals. Eliminating the communication link eliminates the risk of single point of failure
- Equipped with ultra-rapid fuses in the Static Switch
  - ensuring safety in all scenarios
- Equipped with backfeed protection
  - no need for additional installments
- Advanced Battery Management – Intelligent battery charging to keep your batteries safe and in good condition
- The 93PS and Eaton's Intelligent Power Manager® software suite takes the resiliency of the system to the next level by bridging the electrical and IT infrastructure

Key applications

- IT applications:
  - Server rooms
  - Localised Data centres
- Mission critical applications:
  - Manufacturing/Industrial facilities
  - Transportation
  - Retail Buildings
  - Healthcare
  - Telecommunication
  - Government

TECHNICAL SPECIFICATIONS

General		
Model rating (1.0 p.f.)	**8 kW**	**10 kW**
Model catalogue reference	93PS-8(10)-0-MBS or 93PS-8(10)-1x9Ah-MBS	93PS-10(10)-0-MBS or 93PS-10(10)-1x9Ah-MBS
Number of internal batteries	0 or 1 x 32 blocks	0 or 1 x 32 blocks
Upgradability	Yes, to 10 kW	No
External paralleling	Up to 4 units with HotSync technology	
UPS topology	Double conversion	
Efficiency in double-conversion mode	>96%	
Efficiency in Energy Saver System (ESS) mode	Up to 99%	
UPS dimensions (width x depth x height)	335 x 750 x 950 mm	
UPS Degree of protection	IP 20	
Acoustic noise at 1 m, in 25 °C ambient temperature	< 54 dBA in double conversion < 47 dBA in ESS	
Maximum service altitude	1000 m (3300 ft) above sea level at 40 °C Maximum 2000 m (6600 ft) with 1 % derating per each add. 100 m	
RoHS/WEEE compliancy	Yes	

Input		
Model rating (1.0 p.f.)	**8 kW**	**10 kW**
Rated input voltage	220/380 V; 230/400 V; 240/415 V	
Voltage tolerance: Rectifier input Bypass input	 187 to 276 V rated voltage -15% / +10%	
Rated input frequency Frequency tolerance	50 or 60 Hz, user configurable 40 to 72 Hz	
Input wiring	3 phases + neutral	
Input power factor	0.99	
Rated input r.m.s. current: 380V 400V 415V	 13 A 12 A 12 A	 16 A 15 A 15 A
Soft start capability	Yes	
Back feed protection	Yes, for rectifier and bypass lines	

Output		
Model rating (1.0 p.f.)	**8 kW**	**10 kW**
Output wiring	3 phases + neutral	
Rated output voltage	220/380 V; 230/400 V; 240/415 V, configurable	
Total voltage harmonic distortion: 100% linear load 100% non-linear load	 < 1.5% < 3.5%	
Rated output power	8 kW / 8 kVA	10 kW / 10 kVA
Overload capability: On inverter On bypass	 10 min 102-110% load 60 sec 111-125% load 10 sec 126-150% load 300 ms >150% load Continuous < 125% load 20 ms 1000% load	
Rated input r.m.s. current: 380V 400V 415V	 13 A 12 A 12 A	 16 A 15 A 15 A
Load power factor: Rated Permitted range	 1.0 0.8 lagging to 0.8 leading	

Battery	
Model rating (1.0 p.f.)	
Battery technology	12 V, VRLA
Battery design life	5 years
Battery quantity: Internal External	 32 blocks, 192 cells per battery string 28-40 blocks per string
Battery voltage: Internal External	 384 V 336V – 480V
Nominal Ah capacity (C10)	9Ah
Charge current limit	Default 5A, configurable Maximum 12.5A
Battery start option	Yes

Communication circuits	
Model rating (1.0 p.f.)	
MiniSlots	2 communication bays
Network/SNMP interface	Yes, standard
Standard connectivity ports	Mini-slot ports for optional cards, Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs and a dedicated EPO,Web and SNMP card

Compliance with standards	
Model rating (1.0 p.f.)	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3
RoHS	EU directive 2011/65/EU
WEEE	EU directive 2012/19/EU

Eaton 93PS UPS

8-40 kW

Eaton 93PS UPS

Advanced power protection for:

- IT applications:
  - Server rooms
  - Localised Data centres
- Mission critical applications:
  - Manufacturing/Industrial facilities
  - Transportation
  - Retail Buildings
  - Healthcare
  - Telecomm
  - Government

Lowest Total Cost of Ownership (TCO)

Efficiency

- Above 96% efficiency in double conversion mode
- Up to 99% efficiency with Energy Saver System

Scalability

- Scalable architecture and 'Pay as you grow' capability to minimise Capital Expenditure
- Paralleling of up to 4 units

Inherent redundancy

- Modular design allows internal redundancy (separate battery configuration also available)

Smallest footprint in the market

- The 93PS provides significantly more in a smaller package, with a footprint of only 0.25 m² for the smaller frame (8-20 kW) and 0.36 m² for the large frame (8-40 kW)

Unity power factor (1.0)

Maximum Availability

Hot Swap and Hot Scalable

- A module can be replaced while the other continues protecting the load (concurrent maintenance)
- A module can be added while the other continues protecting the load (hot scalable)
- Individual battery strings can be serviced while other strings are supporting the load

Super-sized static switch

- Optional super-sized Static Switch to enhance the selectivity of the overall electrical installation

Safety

- Equipped with an ultra-rapid fuse in the Static Switch – ensuring safety in all scenarios
- Equipped with a backfeed contactor – no need for additional installments

Cloud & Virtualisation ready

- The 93PS and Eaton's Intelligent Power Manager software suite takes the resiliency of the system to the next level by bridging the electrical and IT infrastructure
- IT and electrical infrastructure management from a "Single pane of glass"
- Load shedding – 50% drop in load equates to 250% more runtime!

Eaton 93PS UPS

TECHNICAL SPECIFICATIONS

General	8-20 kW	8-40 kW
UPS output power rating (1.0 p.f.)	8, 10, 15, 20	8, 10, 15, 20, 30, 40, 8+8, 10+10, 15+15, 20+20
Model catalogue reference	93PS-XX(20)-YY-	93PS-XX(40)-YY-
Number of internal batteries	0 to 2 x 32 blocks	0 to 4 x 32 blocks
UPS options	Long life batteries (LL) Internal maintenance bypass switch (MBS)External maintenance bypass switch External battery cabinets	
Upgradability	Yes, up to 20 kW	Yes, up to 40 kW
External paralleling	Up to 4 units with HotSync technology	
UPS topology	Double conversion	
Efficiency in Double conversion mode	>96%	
Efficiency in Energy Saver System (ESS)	Up to 99%	
UPS dimensions (width x depth x height)	335 x 750 x 1300 mm	480 x 750 x 1750 mm
UPS Degree of protection	IP 20	
Acoustic noise at 1 m, in 25 °C ambient temperature	< 60 dBA in double conversion < 47 dBA in ESS	
Maximum service altitude	1000 m (3300 ft) above sea level at 40 °C Maximum 2000 m (6600 ft) with 1% derating per each add. 100 m	

Input						
Rated input voltage Voltage tolerance: Rectifier input Bypass input	220/380 V; 230/400 V; 240/415 V 187 to 276 V rated voltage -15% / +10%					
Rated input frequency Frequency tolerance	50 or 60 Hz, user configurable 40 to 72 Hz					
Input wiring	3 phases + neutral					
Input power factor	0.99					
Input ITHD	8 kW < 5%	10 kW < 4%	15-40 kW < 3%			
Rated input r.m.s. current 380V 400V 415V	8 kW 13 A 12 A 12 A	10 kW 16 A 15 A 15 A	15 kW 24 A 23 A 22 A	20 kW 32 A 30 A 29 A	30 kW 48 A 46 A 44 A	40 kW 63 A 61 A 58 A
Soft start capability	Yes					
Back feed protection	Yes, for rectifier and bypass lines					

Output	
Output wiring	3 phases + neutral
Rated output voltage	220/380 V; 230/400 V; 240/415 V, configurable
Total voltage harmonic distortion 100% linear load 100% non-linear load	 < 1% < 5%
Overload capability On inverter On bypass	 10 min 102-110% load 60 sec 111-125% load 10 sec 126-150% load 300 ms >150% load Continuous < 125% load 20 ms 1000% load
Load power factor Rated Permitted range	 1.0 0.8 lagging to 0.8 leading

Battery	8-20 kW	8-40 kW
Battery technology	12 V, VRLA	
Battery design life	5 or 10 years	
Battery quantity	32 blocks, 192 cells per battery string	
Battery voltage	384 V	
Nominal Ah capacity (C10)	9 Ah or 7 Ah Long life	
Charge current limit	Default 5 A, configurable Maximum 25 A	Default 10 A, configurable Maximum 50 A
Battery start option	Yes	

Communication Circuits	
MiniSlot	2 communication bays
Network/SNMP interface	Yes, standard
Standard connectivity ports	Mini-slot ports for optional cards, Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs and a dedicated EPO, Web and SNMP card

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

Eaton 93PM UPS

30-500 kVA

Key applications

- Small, medium and large data centers
- Finance and banking critical infrastructure
- Commercial buildings and industrial complexes
- Healthcare
- Telecommunications installations
- Process control equipment

Highest availability, at the lowest total cost of ownership

Lowest total cost of ownership (TCO)

- The 93PM UPS sets new standards, with an operating level of up to 96,7% in double conversion mode resulting in significant savings in operational costs.
- > 99% superior efficiency is delivered in Energy Saver System mode (ESS).
- High efficiency even when UPS load levels are low, optimized by Variable Module Management System (VMMS).
- Maximal power and energy density ensures a compact footprint.

Ultimate resiliency

- HotSync® patented load-sharing technology enables parallel operating of static converters without communication or loadshare signals. Eliminating the communication link eliminates risk of single point of failure.
- One static switch per UPS enables the full bypass capacity to be achieved from day one. Power modules can be added as loads increase.
- Equipped with an ultra-rapid fuse in the Static Switch – ensuring safety in all scenarios.
- Equipped with a backfeed contactor – no need for additional installments
- Wide power factor range meets rapidly changing load power factor without de-rating.
- Intelligent battery charging through Advanced Battery Management prevents unnecessary charging and significantly retards battery wear rate.

Higly scalable and easy deployment

- Scalable, modular architecture and 'Pay as you grow' capability minimises CapEx.
- Thermal management support allows for flexible installation against the wall, in rows and in hot/cold aisle configurations.
- Easy access allows fast MTTR (mean time to repair).

Easy management

- Wide range of connectivity options (Web/SNMP, Modbus/Jbus, relay contacts)
- Intelligent Power software integrates with leading virtualisation management systems for monitoring and managing.
- The intuitive touchscreen LCD user interface and visual data logging provides clear information on the UPS status.

Eaton 93PM UPS 30-500 kVA

TECHNICAL SPECIFICATIONS

General	
UPS output power rating	30-500 kVA
Efficiency in double conversion mode	Up to 97%
Variable Module Management System (VMMS) double conversion	Significantly increased efficiency at low loading
Efficiency in Energy Saver System (ESS)[1]	> 99%
Paralleling capability	30-200 kVA: Up to 8 units 250-500 kVA: Up to 4 units
Rectifier and inverter topology	Transformer-free 3-level IGBT-converter
Audible noise	30-60kVA: <60 dBA 80-200kVA: < 65 dBA 250-500kVA: < 69 dBA ESS mode: < 47 dBA
Altitude (max)	1000 m without derating (max 2000 m)

Input	
Input wiring	3ph + N + PE
Nominal voltage rating	220/380V; 230/400V; 240/415V 50Hz/60Hz
Input frequency range	40 to 72 Hz
Input power factor	0.99
Input iTHD	30kVA, 60kVA: < 4.5% 40-500kVA: <3%
Soft start capability	Yes
Internal backfeed protection	Yes

Output	
Output wiring	3ph + N +PE
Nominal voltage rating	220/380V; 230/400V; 240/415V 50Hz/60Hz
Load power factor range	0.8 lagging – 0.8 leading

Battery	
Battery type	VRLA
Charging mode	Advanced Battery Management or Float
Temperature compensated battery charging	Option
Battery start capability	Yes
Alternative backup power technologies	Wet cell batteries NiCd batteries Li-Ion batteries Supercapacitors

Accessories

Long life batteries
External battery cabinets and supercapacitor cabinets
External maintenance bypass switch panels, Integrated manual bypass
Battery breaker enclosures for rack batteries

Connectivity	
Native Relay inputs / outputs	5 relay inputs and dedicated EPO 1 relay output More relay contacts available as option
Software	Eaton Intelligent Power Manager Eaton Intelligent Power Protector
PXGMS –card	Web/SNMP/Modbus RTU and TCP/BACnet IP Temperature, humidity and two status inputs through Environmental Monitoring Probe (option)
Network-MS card	Web/SNMP Temperature, humidity and two status inputs through Environmental Monitoring Probe (option)
INDRELAY-MS card	5 output relays, 1 digital input
Compliance with standards	
Safety	IEC 62040-1; CB certified
EMC	IEC 62040-2
Performance	IEC 62040-3
RoHS	EU directive 2011/65/EU
WEEE	EU directive 2012/19/EU

[1] Additional information on ESS performance, refer to 93PM UPS Technical Specification.

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

Power Xpert 9395P UPS

250 - 1200 kVA

Power Xpert 9395P UPS with optional power module status lights

Advanced power protection for:

- Large data centres, infrastructure projects, industrial complexes and other buildings
- Process control equipment
- Healthcare
- Finance and banking infrastructure
- Transportation systems
- Security operations
- Telecommunications installations

Compatible with Lithium-ion batteries and Supercapacitors!

Double conversion UPS

10% more power

- 96.3% double conversion efficiency, delivers 10% more power than the previous 9395 UPS.
- Complete isolation of output power from all input power anomalies, to deliver 100% conditioned, perfect sine-wave output – even during severe power disturbance.
- High efficiency even when UPS load levels are low, optimised by Variable Module Management System (VMMS).
- Energy Saver System (ESS) improves efficiency levels to 99% by suspending power modules when double conversion is not required. Switches to double conversion mode in less than 2 milliseconds in event of pre-set input limits being exceeded. Filtering against fast low-energy transients provided by ESS.
- Producing 18% less heat helps reduce the need for cooling. Designed for continuous operation at ambient temperatures up to 40°C without de-rating. Can also deliver safe power in higher temperatures without shutting down.

Ultimate resiliency

- HotSync® patented load-sharing technology enables parallel operating of static converters without communication or load-share signals. Eliminating the communication link eliminates risk of single point of failure.
- One static switch per UPS enables the full bypass capacity to be achieved from day one. Power modules can be added as loads increase.
- Wide power factor range meets rapidly changing load power factor without de-rating.
- Intelligent battery charging through Advanced Battery Management prevents unnecessary charging and significantly retards battery wear rate.

Scalability and flexibility

- Number of power modules per UPS can be specified.
- Layout can be chosen to suit installation: back-to-back, L-shaped etc. Front-accessible design minimises installation costs and saves valuable data centre space.
- Preferred bypass topology can be specified. Additional modules can be added as power load increases.
- Centralised multi-module paralleled 9395P systems are supported by the Eaton System Bypass Module (SBM). Available in ratings from 2000 A to 5000 A as standard, the SBM includes a continuous-duty centralised static switch, backfeed protection device and centralised bypass systems.
- Service disconnect in each power module allows easy maintenance while the UPS is supporting the load in double conversion mode.
- More than 90% of materials used can be recycled, decreasing end-of-life impact.

Power Xpert 9395P UPS

TECHNICAL SPECIFICATIONS

UPS output power rating								
kVA	250	300	500	600	750	900	1000	1200
kW	250	275	500	550	750	825	1000	1100

General	
Efficiency in double conversion mode (full load)	95.6%
Efficiency in double conversion mode (half load)	96.3%
VMMS (double conversion)	Significantly increased efficiency at low loads
Efficiency in Energy Saver System (ESS)	Up to 99.3%
Distributed parallelling with Hot Sync technology	Up to 5 units with Distributed bypass Up to 7 units with Centralized bypass
Internal N+1 redundance capable	Yes
Field upgradable	Yes
Inverter/rectifier topology	Transformer-free IGBT with PWM
Audible noise	78 dB (300 kVA); <81 dB (600 kVA); <83 dB (900 kVA); <85 dB (1200 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% for 400 V or 415 V +15% / -10% for 380 V +10% / -10% for bypass
Input frequency range	45-65 Hz
Input power factor	0.99
Input ITHD	<3% on nominal load in double conversion mode
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	<2% (100% linear load), <5% (non linear load)
Output power factor	0.9 (300, 600, 900 and 1200 kVA models) 1.0 (250, 500, 750 and 1000 kVA models)
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			
Charging method	Current limited constant voltage charging, or Eaton Advanced Battery Management (ABM)			
Temperature compensation	Optional			
Battery nominal voltage (lead-acid)	480 V (40 x 12 V, 240 cells)			
Charging current / Model	300	600	900	1200
Max* A	120	240	360	480

*Limited by maximum UPS input current rating

Alternative backup power technologies	Wet cell batteries NiCd batteries Lithium-ion batteries Supercapacitors

Dimensions and weights		
300 kVA	1350 x 880 x 1880 mm (wxdxh)	830 kg
600 kVA	1890 x 880 x 1880 mm	1440 kg
900 kVA	3710 x 880 x 1880 mm	2680 kg
1200 kVA	4450 x 880 x 1880 mm	3120 kg

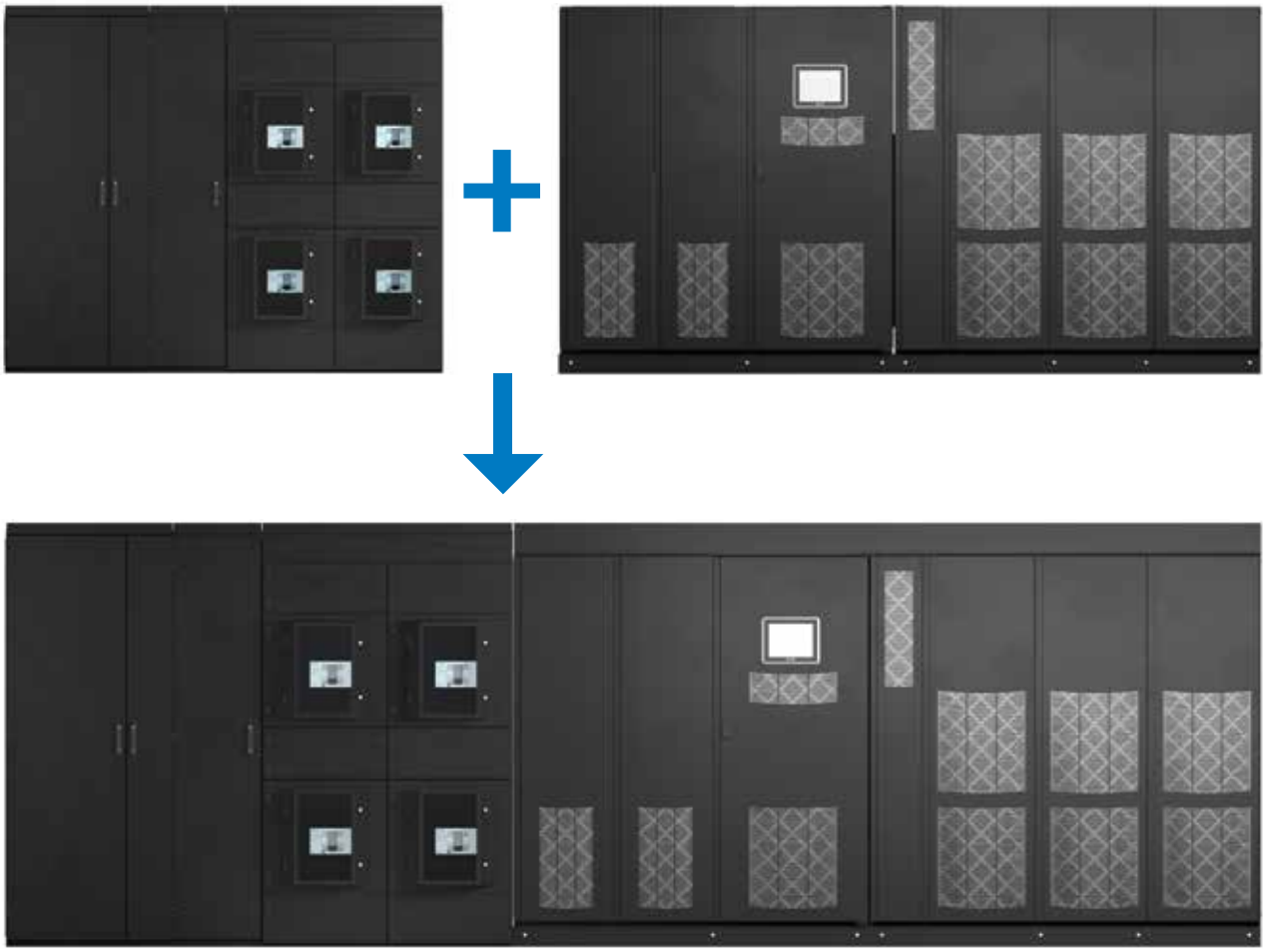
Accessories and options	
	External battery cabinets with long-life batteries, X-Slot connectivity (Web/SNMP, ModBus/Jbus, Relay, Hot Sync, ViewUPS-X remote display), integrated manual bypass for 300 kVA model, Power Module status LED kit

Communications	
X-Slot	4 communication bays
Relay inputs/outputs	5/1 programmable

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

Eaton Connected

The all-in-one solution for power distribution and UPS backup power



Choosing the Eaton Connected solution offers opportunity to save time and to have results delivered on time and budget. Eaton Connected combines two highly reliable, safe and efficient Eaton products, UPS and low voltage switchgear integrate to a market-leading backup power solution.

Power Xpert CX Switchgear can be combined with either Power Xpert 9395P UPS or Eaton 93PM UPS, to provide in one solution:

- Incoming feeder
- Maintenance bypass
- UPS solution
- Outgoing feeders

The result is combined power distribution and UPS backup power solution, that is safe, fast, flexible, reliable – and all-in-one.

The all-in-one solution for power distribution and UPS backup power

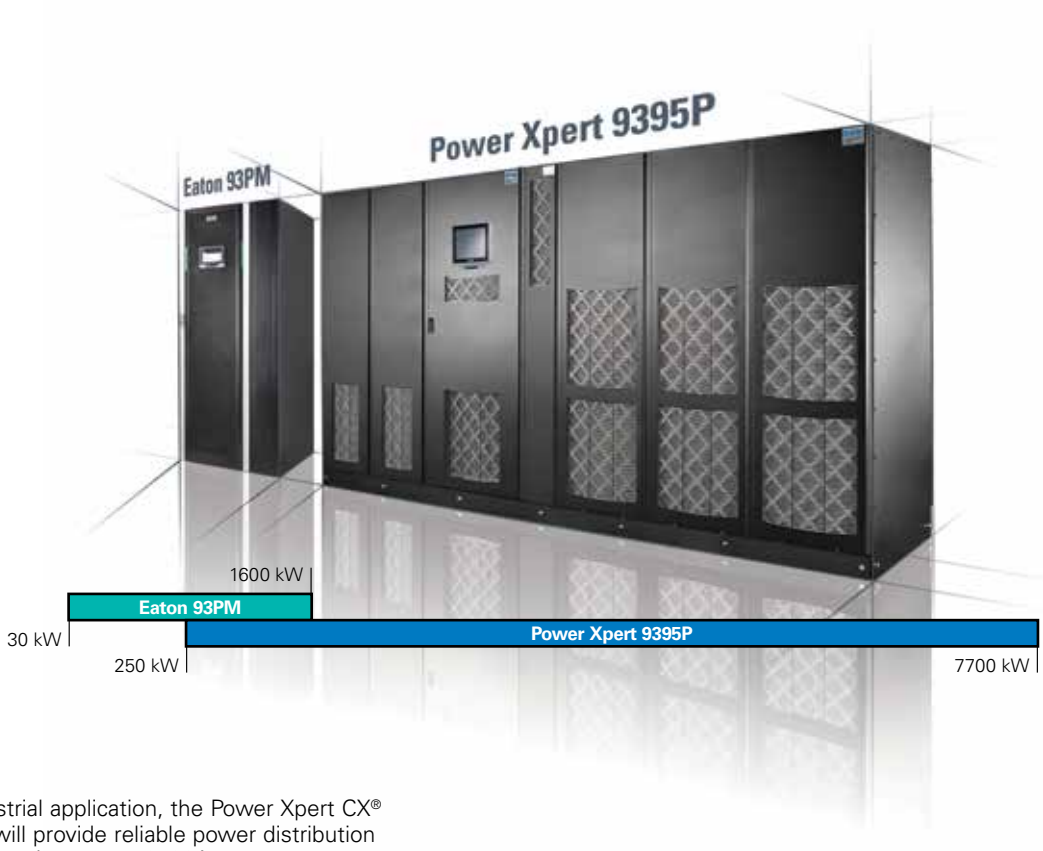
High-quality Eaton components have been carefully selected to ensure reliability and safety. They have been tested against UPS and switchgear standards, as applicable, to validate their safe and reliable operation and their resilience in challenging short-circuit conditions. In addition to separate testing of the UPS and switchgear, the complete Eaton Connected solution is tested and verified as one.

Get faster to market with optimized design

With pre-designed solutions, Eaton Connected makes it quicker and easier to plan and install a system, compared with a conventional component-based system. The modular construction of the Eaton Connected solution allows the optimized design around the project-specific requirements. The result is a solution perfectly tailored to current needs, with a minimum upfront investment. But also it can quickly be scaled to meet changing requirements, easily, efficiently and affordably.

Power to choose

There are two backup power options, Eaton 93PM and Power Xpert 9395P UPSs, available for direct pre-connection to Power Xpert CX switchgear. With power ratings from 30-900 kVA power rating and with a static switch section up to 1200 kVA to meet challenging short-circuit currents.



Low voltage. High reliability

Whatever you commercial or industrial application, the Power Xpert CX® IEC low voltage power assembly will provide reliable power distribution and motor control functionality, for ratings up to 6300A.

The reliable system

Built to a design which has been fully verified by independent third party testing in accordance with IEC 61439-2, Power Xpert CX switchgear is manufactured to the latest international standards.

Its 4B form of internal separation ensure exceptionally reliable operation at all times.

The safe system

For 300 kVA and below, the Power Xpert CX features not only fixed but also plug-in compartments, which allow modification without requiring a complete system shutdown.

Breakers are automatically tripped in case of removal and there are lock-out options too – ensuring safety at all times.

The flexible system

Modular design and construction means that the CX can be expanded as and when required, to meet your changing power distribution needs.

This capability is enhanced by the solution's small footprint, resulting from the switchgear's compact design. In addition, cable connections can be made at the top or the bottom, which means the CX can be located in a range of positons and can accommodate a range of electrical designs.

To find out more, visit **eaton.eu/cx**

Eaton 93 STS

100/250/400/630/800/1000/1250A

93 STS

Meeting absolute uptime requirements for:

- Data centres
- Internet providers
- Industrial facilities
- Utilities
- Telecommunications
- Government
- Financial services

Static Transfer Switch

Seamless power transfer

- 3-phase Static Transfer Switch, for automatic transfer of critical AC loads to and from one power source to another, without interruption.
- Rated from 100A to 1250A.
- Available in 3- and 4-pole versions.

Reliable performance

- Continuous monitoring of sources ensures automatic and instantaneous power transfer, without cross-connecting the sources.
- Retransfer is also automatic, and there is the capability for manual transfer if required.
- All the system control boards feature redundant internal power distribution.
- A dual manual bypass is built in, to enable safe maintenance with no disruption of the power supply.
- A global installed base reflects the widespread acceptance and popularity of the Eaton 93 STS.

Connectivity and easy management

- The 93 STS has RS232 and RS485 interfaces, with Modbus protocol. It also features output relay contacts.
- There is a built-in HMI and system mimic panel. The LCD screen and block diagram of the STS – with integrated LEDs – allows a quick check of the switch's operating status.
- Metering, alarms and event logs are also provided.
- The 93 STS range is supplied in a free-standing cabinet.

Eaton 93 STS 100-1250A

TECHNICAL SPECIFICATIONS

General							
Rating	100A	250A	400A	630A	800A	1000A	1250A
Dimension (mm) (W x H x D)	820 x 1475 x 835	820 x 1475 x 835	820 x 1475 x 835	1220 x 1900 x 860	1220 x 1900 x 860	1220 x 1900 x 860	2000 x 2100 x 1000
Weight (kg)	265	290	305	615	660	710	800

Operational	
Input / Output connection	Hardwired
Nominal input voltage (Vac)	208/380/400/415/441/480 Vac three phase
Source voltage range	Up to +/- 20%, +/- 10% factory adjusted
Frequency	50/60 Hz
Transfer time and mode	<=4ms, break before make (avoid fault propagation)
Efficiency	>=99%
Load power factor	1 to 0,3
THD current f.back from load	Unlimited
Standard options	3-phase 4-pole configuration, plug-in circuit breakers, operation without neutral, Panel Builder versions
Options on request	Output distribution panels, isolation transformer, special IP rating, paint finish

User interface	
Front display	Graphical LCD display showing status, meters, alarms and event log, mimic with LED
Communication ports (optional)	RS232, RS485, Modbus, 9 programmable inputs, 5 (+9 optional) programmable output relays, additional relays
Operational temperature	0°C - +40°C
Relative humidity	0,95% non-condensing
Altitude	<1000m
Audible noise at 1m (dBA)	<65 dBA (according ISO 3747)
Certification	
Markings	CE
Safety	EN 50178
EMC	EN61000-6-4, EN61000-6-2
Low voltage assemblies	IEC 60436-1, 60439-2, 60439-3
Semiconductor convertors	IEC 60146-1-1, 60146-1-3, 60146-2
Degree of protection	IEC 60529

93 STS

Eaton 9PX Marine UPS

1500–3000 W

9PX Marine UPS

Advanced protection for:

- Bridge systems
- Navigation systems
- Communication systems
- Small computer and automation systems

Energy-efficient double conversion UPS

Reliability

Double conversion topology constantly monitors power conditions and regulates voltage and frequency.

The internal bypass allows service continuity in case of internal fault, a maintenance bypass is also available for easy replacement of the UPS.

With coated boards and hi-temperature environment compatibility, 9PX Marine is designed for Marine & Offshore environments.

Stronger, longer battery life: Eaton ABM battery management technology uses an innovative three-stage charging technique that extends battery life by up to 50%.

DNV-GL type approved UPS.

Performance and efficiency

9PX Marine is the first UPS in its class to provide Unity power factor (VA=W). It delivers 11% more power than any other UPS as well as powering more servers with equivalent VA ratings and lower power factors.

9PX can meter energy consumption right down to the managed outlet groups. kWh values can be monitored using the LCD or Eaton's Intelligent Power™ Software.

Energy Star qualified, the 9PX Marine provides the highest efficiency level to reduce energy and cooling costs.

Manageability & Flexibility

The graphical LCD display provides clear information on the UPS's status and measurements on a single screen. Enhanced configuration capabilities are also available.

9PX offers Serial and USB connectivity, plus an extra slot for an optional communication card. Eaton's Intelligent Power Software seamlessly integrates with leading virtualisation environments and cloud orchestrations tools.

More runtime can be added with up to 4 external hot-swappable battery modules, able to run systems for hours if necessary.

ENERGY STAR

VA = Watt

Eaton 9PX UPS technical specifications

1 Graphical LCD display :
- Clear information on UPS status and measurements
- Enhanced configuration capabilities

2 Panel for batteries replacement (Hot swappable)

3 Slot for Management card

Eaton 9PX 3000 Marine

4 Outputs: 8 x IEC 10A + 2 x IEC 16A with energy metering (including 2 programmable groups)

5 USB port,1 serial port, Remote ON/OFF, Remote power OFF and Relay output

6 External battery (EBM) connector

TECHNICAL SPECIFICATIONS

	1500		3000VA			
Rating (VA/W)	1500 VA/1500 W		3000 VA/3000 W			
Format	RT2U (tower/rack 2U)		RT3U (tower/rack 3U)			
Electrical characteristics						
Technology	On-line double conversion with Power Factor Correction (PFC) system					
Nominal voltage	200/208/220/230/240 V					
Input voltage range	176-276 V without derating (up to 100-276 V with derating)					
Input frequency range	40-70Hz, 50/60Hz autoselection, frequency converter mode					
Efficiency	up to 92.5% in online mode (up to 97.5% in Hi-efficiency mode)		up to 94% in online mode (up to 98% in Hi-efficiency mode)			
Connections						
Input	1 IEC C14 (10A)		1 IEC C20 (16A)			
Outputs	8 IEC C13 (10A) sockets		8 IEC C13 (10A) sockets + 2 IEC C19 (16A) sockets			
Batteries						
Typical backup times*	300 W	500 W	800 W	1200 W	1800 W	2500 W
9PX 1500	38	23	13	7		
9PX 1500 + 1 EBM/+4 EBM	143/536	86/319	52/192	32/120		
9PX 3000	60	36	22	13	7	4
9PX 3000 + 1 EBM/+4 EBM	221/824	135/504	83/307	52/194	33/122	22/82
Battery management	ABM & temperature compensated charging method (user selectable), automatic battery test, deep discharge protection, automatic recognition of external battery units					
Communication						
Communication ports	1 USB port + 1 serial RS232 port + 1 mini-terminal block for remote ON/OFF + 1 mini-terminal block for remote power off + 1 mini-terminal block for output relay					
Communication slot	1 slot for Network-MS card, ModBus-MS or Relay-MS cards					
Operating conditions, standards and approvals						
Operating temeprature	0 to 40°C					
Typical noise level	35dB		40dB			
Safety	IEC/EN 62040-1, UL 1778, CSA 22.2					
EMC	IEC/EN 62040 -2, FCC Class B, CISPR22 Class B					
Approvals & markings	DNV-GL Type approved /CE /CB report (TUV) / cULus / EAC /RCM / KC / Energy Star					
Dimensions H x W x D in mm/ Weight						
UPS	86.5*440*450/18.9kg		130*440*485/27.4kg			
EBM	86.5*440*450/29.8kg		130*440*485/38.2kg			
Customer service and support						
Warranty	3 years on electronics, 2 years on batteries					

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

Parts numbers*	9PX 1.5 kVA	9PX 3 kVA
UPS	9PX1500IRTM	9PX3000IRTM
EBM	9PXEBM48RT2U	9PXEBM72RT3U
2m battery connection cable	EBMCBL48	EBMCBL72
Marine FIlter**	9PXMF3KI	

*All 9PX UPS and EBM are delivered with rack kit
**Marine UPS requires Marine filter (EMC) for IEC/EN 60945 compliance

In the interests of continuous product improvement all specifications are subject to change without notice.

Eaton 9155M and 9355M UPS

8 - 15 kVA

Advanced vessel or rig power protection for:

- Navigation systems
- Communication systems
- Ship automation
- Computer systems
- Integrated bridge

Double conversion UPS

Qualified design for marine and offshore environment

- DNV type approved UPS
- BV type approved UPS
- ABS design assessed
- Compact design for saving space
- Easy to install, mounting rails can be bolted or welded to the deck/bulk head
- IP22 protection class
- Vibration absorbers under and at the back of the cabinet
- Maintenance from the front

Premium power performance

- Double conversion provides the highest level of protection available by isolating the output power from all input anomalies.
- Active power factor correction (PFC) provides 0,99 input power factor and less than 4,5% 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

- Patented Powerware HotSync® technology makes it possible to parallel up to four 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 automatic static bypass switch
- Internal mechanical bypass switch

Extensive configurability

- Configurable to frequency converter operation (50 → 60Hz and 60 → 50Hz)
- 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

- Small footprint saves valuable space in ship and rig installations.
- Possibility for internal transformer or batteries eliminate the need for costly and space-consuming external cabinets.
- A single technical platform used in Eaton´s 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 9155M/9355M 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% (without transformer)
Efficiency in double conversion mode (half load)	90% (without transformer)
Distributed parallelling with Hot Sync technology	4
Field upgradeable	yes
Inverter/rectifier topology	transformer-free IGBT with PWM
Audible noise	<50 dB
Colour	RAL 7035

Input	
Nominal voltage rating (configurable)	380, 400, 415 V 50/60 Hz
With internal transformer	(9155): e.g. 230, 400, 440, 480, 690V
With external transformer	(9355): e.g. 230, 400, 440, 480, 690V
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	
Nominal voltage rating (configurable)	380, 400, 415 V 50/60 Hz
With external transformer	(9155): e.g. 230, 400, 440, 480, 690V
With internal transformer	(9355): e.g. 230, 400, 440, 480, 690V
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

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

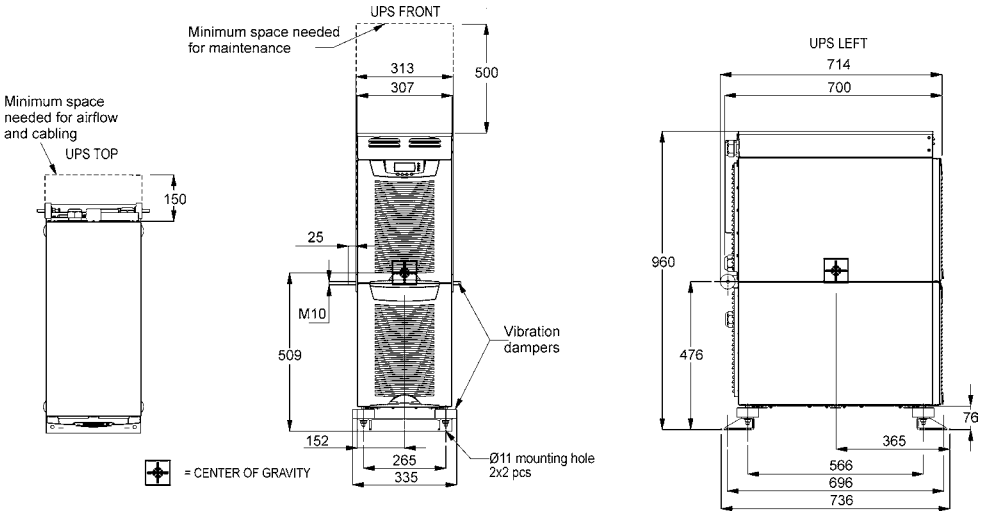
Communications	
X-Slot	2 communication bays
Serial ports	1 available
Relay inputs/outputs	2/1 programmable

Compliance with standards	
Safety	IEC 62040-1, IEC 60950-1
EMC	IEC 62040-2, IEC 60945
Performance	IEC 62040-3
Approvals	CE, DNV Type Approval, BV Type Approval and ABS PDA
Other classification survey reports	On request

Stand-alone UPS with 1-phase input			
Description	**Rating**	**Dimensions (HxWxD)**	**Weight with input transformer (net/gross)**
9155-8-ST-M	8 kVA / 7.2 kW	960x313x714 (+150 mm)	170/190 kg
9155-10-ST-M	10 kVA / 9 kW	960x313x714 (+150 mm)	170/190 kg

Stand-alone UPS with 3-phase input			
Description	**Rating**	**Dimensions (HxWxD)**	**Weight with input transformer (net/gross)**
9155-8-NT-M	8 kVA / 7.2 kW	960x313x714 (+150 mm)	170/190 kg
9155-10-NT-M	10 kVA / 9 kW	960x313x714 (+150 mm)	170/190 kg
9155-12-NT-M	12 kVA / 10.8 kW	960x313x714 (+150 mm)	170/190 kg
9155-15-NT-M	15 kVA / 13.5 kW	960x313x714 (+150 mm)	170/190 kg

External battery cabinets				
Description	**Rating**	**Back-up**	**Dimensions (HxWxD)**	**Weight (net/gross)**
9X55-BAT-M-64x7Ah	2x32x7 Ah	See runtime spec.	880x347x718 (+150 mm)	217/237 kg
9X55-BAT-M-96x7Ah	3x32x7 Ah	See runtime spec.	1278x347x718 (+150 mm)	323/348 kg



Eaton 9155M and 9355M UPS

1ph: 20 - 30 kVA
3ph: 20 - 40 kVA

Advanced vessel or rig power protection for:

- Navigation systems
- Communication systems
- Ship automation
- Computer systems
- Integrated bridge

Double conversion UPS

Qualified design for marine and offshore environment

- Compact design for saving space
- Easy to install, mounting rails can be bolted or welded to the deck/bulk head
- IP22 protection class
- Vibration absorbers under and at the back of the cabinet
- Maintenance from the front

Premium power performance

- Double conversion provides the highest level of protection available by isolating the output power from all input anomalies.
- Active power factor correction (PFC) provides 0,99 input power factor and less than 4,5% 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

- Patented Powerware HotSync® technology makes possible to parallel up to four 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 automatic static bypass switch
- Internal mechanical bypass switch

Extensive configurability

- Configurable to frequency converter operation (50 Ô 60Hz and 60 Ô 50Hz)
- 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
- Internal space for 1 - 2 optional input/output transformers

Cost savings and sustainability

- Compact space efficient tower design offers smaller footprint enabling easy data centre space-planning and preserving valuable raised-floor real estate.
- Possibility for internal transformer eliminate the need for costly and space-consuming external cabinets.
- A single technical platform used in Eaton´s 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 9155M/9355M 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% (without transformer)
Efficiency in double conversion mode (half load)	91% (without transformer)
Distributed parallelling with Hot Sync technology	4
Field upgradeable	yes
Inverter/rectifier topology	transformer-free IGBT with PWM
Audible noise	<50 dB
Colour	RAL 7035

Input	
Nominal voltage rating (configurable)	380, 400, 415 V 50/60 Hz
With external transformer	e.g. 230, 440, 480, 690 V
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	
Nominal voltage rating (configurable)	220/380, 230/400, 240/415 V 50/60 Hz
With transformer	e.g. 230, 440, 480, 690 V
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

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

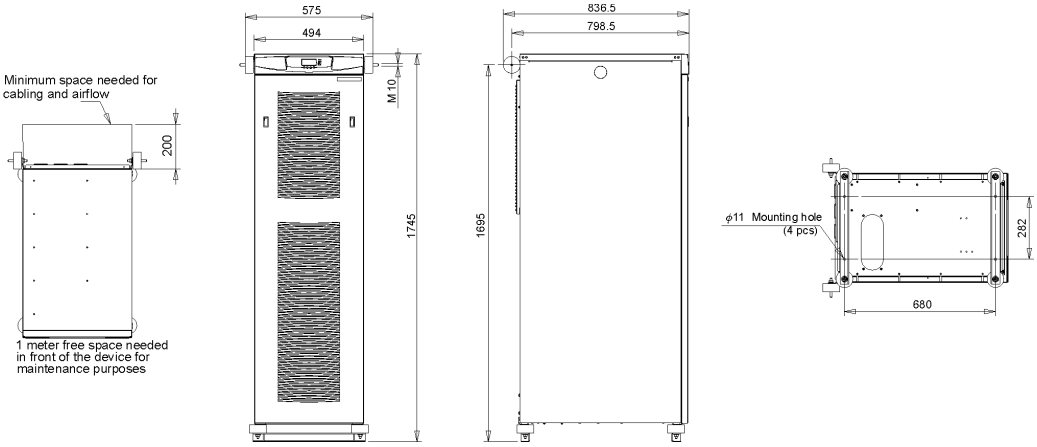
Compliance with standards	
Classification survey report	On request

Standard UPS with 3-phase input

Description	Rating	Dimensions (HxWxD)	Weight
9155-20-NT-M	20 kVA / 18 kW	1745x575x762 (+200) mm	450 kg with input transformer
9155-30-NT-M	30 kVA / 27 kW	1745x575x762 (+200) mm	450 kg with input transformer
9355-20-NT-M	20 kVA / 18 kW	1745x575x762 (+200) mm	425 kg with I/O transformers
9355-30-NT-M	30 kVA / 27 kW	1745x575x762 (+200) mm	455 kg with I/O transformers
9355-40-NT-M	40 kVA / 36 kW	1745x575x762 (+200) mm	355 kg with Output transformer

External battery cabinets

Description	Rating	Runtime	Dimensions (HxWxD)	Weight
9X55-BAT-M-1x24Ah (30 kVA)	1x36x24 Ah	See runtime spec	1745x575x762 (+200) mm	550 kg
9X55-BAT-M-2x24Ah (30 kVA)	2x36x24 Ah	See runtime spec	1745x575x762 (+200) mm	970 kg



Eaton 93PS Marine UPS

8-40 kW

20 kW 40 kW

Key applications:

- Navigation
- Communication
- Automation and monitoring systems
- Auxiliary power systems
- Safety systems
- Distributed UPS systems
- Peak shaving
- EPOS

Ease of deployment

- Spacious power cabling area at the bottom of the unit
- Factory installed and tested internal transformers reduce footprint and cabling at site by 50%
- Best in class footprint and power density for easier floor planning and space saving
- Possibility to design inherently redundant systems in one frame
- Back feed protection and bypass fuses included by default for easier planning and secured safety
- Ships with any classification society certificate as requested
- Engineering package to help planning in 3D or 2D environment
- Pre- and after-sales support assisting you from quoting to decommissioning

Ease of maintenance

- Hot Swap power modules means typical MTTR=0h
- Training + pre-defined spare part kits for basic UPS service
- Fully front serviceable
- Mini Slot extension cards for remote monitoring and management
- No replacement of DC caps during the product design life
- Easy Capacity Test to do full load test without the need for load bank
- Eaton Advanced Battery Management (ABM) maximizes the battery life while providing automatic diagnostics of battery health
- Worldwide coverage of Eaton service at your service 24/7

Economical to operate

- Minimal losses and associated costs due to market leading efficiency reaching above 96%
- Cuts down operational costs by up to 50% compared to a legacy UPS
- Saves up to 650 barrels of marine diesel per UPS
- Flat efficiency curve means high efficiency regardless of the load level
- Compatibility with VRLA, Ni-Cd, Li-Ion or super capacitors allows for choosing the optimal energy or power reserve for your application

Eaton 93PS Marine 8-40 kW

TECHNICAL SPECIFICATIONS

General	
Output power rating (PF 1.0)	8, 10, 15, 20, 30, 40 kW
External paralleling	Up to 4 units with HotSync technology
Inherent redundancy	Up to 20 kW with HotSync technology
Efficiency in double-conversion mode	Up to 96.0%
Efficiency in Energy Saver System mode	Up to 98.8%
UPS topology	Double conversion
UPS performance classification	VFI-SS-111
Degree of ingress protection	IP23
Standard UPS color	Industrial grey; RAL 7035
Ambient service temperature range	0°C to 45°C
Maximum service altitude	1000 m (3300 ft) above sea level at 40 °C
Acoustic noise at 1 m, in 25 °C ambient temperature, without transformers	< 60 dBA in double conversion < 47 dBA in ESS
Mean Time To Repair (MTTR)	< 8 minutes (UPM) / < 15 minutes (UPS)
RoHS/WEEE compliancy	Yes
Input	
Nominal voltage rating Input voltage with internal transformers	380 V, 400 V, 415 V 208 V - 690 V
Input frequency range	40 - 72 Hz
Input wiring	3ph+N+PE (3ph+PE with input transformer)
Input power factor	0.99
Input THDi 100% linear load	< 3%
Soft start for generators	Yes
Internal back feed protection	Yes, for rectifier and bypass lines
Output	
Output wiring	3ph+N+PE / 3ph+PE
Rated output voltage Output voltage with internal transformers	380 V, 400 V, 415 V 208 V - 690 V
Output frequency	50 Hz / 60Hz configurable
Output UTHD	< 1.5% (100% linear load), < 3.5% (100% non-linear load)
Inverter overload capacity	10 min 102 – 110% load
	60 s 111 – 125% load
	10 s 126 – 150% load
	300 ms > 150% load
Static bypass capacity	Continuous < 125% load, 20 ms 1000% load
Short-circuit capability at rated voltage	Up to 144 A / 300 ms
Rated output power factor	1.0
Load power factor range	0.8 lagging to 0.8 leading

Battery	
Battery technology	VRLA, Li-Ion, NiCd, Eaton Super Capacitors
Nominal battery voltage	336 V - 480 V
Charge current limit	
Load ≤80%	Up to 50 A, configurable
Load >80%	Up to 30 A, configurable
Charging method	Eaton ABM technology or float
Boost charge function	Yes
Temperature compensation	Yes
Battery start option	Yes
Communications	
MiniSlots	2 communication bays for Web/SNMP, ModBus/Jbus & Industrial realy
Standard connectivity ports	Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs, 1 relay output and a dedicated EPO
Accesories	
Accessories for UPS	Internal transformers; Single feed kit; Earth fault monitoring; 24V Emergency Power Off (EPO); Custom system and battery voltages; Custom colors
Compliance with standards	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3
RoHS	EU directive 2011/65/EU
WEEE	EU directive 2012/19/EU
Environmental Aspects - Requirements and Reporting	IEC 62040-4, EN 50581

Due to continuous product imrovement programmes, specifications are subject to change without notice. For product specific specifications, contact Eaton sales representatives.

Eaton 9PHD Marine UPS

30–200 kW

Designed, Manufactured and Tested in Finland

Strong and Smart Power Protection

Designed and Certified for Marine and Offshore

Designed for marine and offshore environments

- Marine certificate from any marine classification society
- Marine vibration tested units
- Halogen free cables
- IP23 protection
- Conformally coated PCB boards
- Cable area designed to support marine cabling practices
- Vibration dampers and installation brackets for floor and wall
- Door handle, stopper and triangle key included

Strong design for demanding environments

- Protection against dirt, dust, water and moisture with cover options up to IP54
- 1.5mm cover plates for robust use
- Protection for touch screen display

Smart technology for maximizing reliability

- Large touch screen display for easy operation and reduced risk of human error
- Modular design allows building fault tolerant N+1 units
- Redundant monitored cooling fans in each power module
- Battery start feature
- Eaton's unique Hot Sync wireless paralleling for building n+1 systems with several UPS units

Smart technology for minimizing operating costs

- The 9PHD UPS sets new standards with an operating efficiency level up to 97% in double conversion mode
- > 99% superior efficiency is delivered in Energy Saver System mode (ESS)
- Power factor 1 increases unit power by 10-20% compared to average UPS

Easy deployment for optimizing installation costs

- Front access for installation and service
- Cabinet supports use of halogen free cables, double cables and large cables for installation
- Lifting lugs included for easier unit handling during installation
- Suitable for 3-wire and 4-wire networks and voltage range 380V-480 V without transformers
- Small footprint due compact power electronics and internal transformer options

Eaton 9PHD Marine 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%
Inverter/rectifier topology	Transformer-free IGBT with PWM
Audible noise	30–50 kW: < 60 dBA 80–200 kW: < 65 dBA ESS operation: < 47 dBA
Ambient temperature	0°C to 45°C at sea level, higher temperatures are optional
Ingress protection	IP23, Optional: IP33;IP54

Input	
Input wiring	3ph + N + PE / 3ph + PE
Nominal voltage rating (configurable)	380 V-480 V, 50/60 Hz
With optional transformer	208 V- 690 V, 50/60 Hz
Input voltage range	Rectifier input + 20%, if voltage > 440 V +10% **Low** -15% at 100% load, -40% at 50% load without battery discharge Bypass +10% - (-15%)
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, Ni-Cd
Charging method	ABM technology or Float
Temperature compensation	Optional
Battery nominal voltage (VRLA)	From 432 V (36 x 12 V, 216 cells) to 480 V (40 x 12 V, 240 cells) **Note:** Strings with different battery voltage may not be paralleled!
Charging current maximum*	30–50 kW 29.3 A 80–100 kW 58.6 A 120–150 kW 87.9 A 160–200 kW 117.2 A
Battery start capability	Yes

* when load level ≤ 40 kW/UPM

Output	
Output wiring	3ph + N + PE/ 3ph + PE
Nominal voltage rating (configurable)	380 V-480 V, 50/60 Hz
With optional transformer	208 V- 690 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% **Note:** Bypass fuses may limit the overload capability!

Accessories

Accessories for UPS:

Internal transformers; Cabinet protection IP33, IP54; ATS automatic transfer switch; Single feed kit; Earth fault monitoring; 24V Emergency Power Off (EPO); Special system voltages

Accessory cabinets:

Marine battery cabinets with long-life batteries; Matching transformer cabinet for one or two transformers; External maintenance bypass switch.

Communication options:

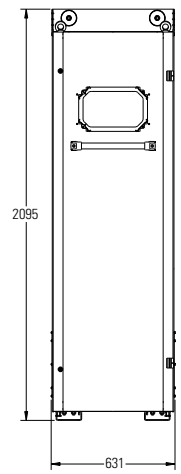
Web/SNMP; ModBus/Jbus; Industrial Relay

Communications	
MiniSlot	4 communication bays
Serial ports	Built-in host and device USB
Relay inputs/outputs	5 relay inputs and dedicated EPO 1 relay output

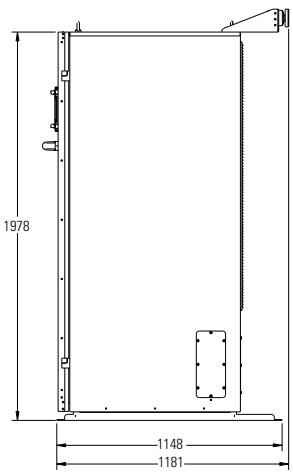
Compliance with standards	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3

Marine class certificates are available from any class example: DNV, ABS, Lloyds Register Bureay Veritas etc

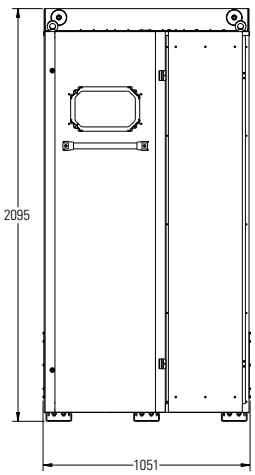
Due to continuous product imrovement programmes, specifications are subject to change without notice.



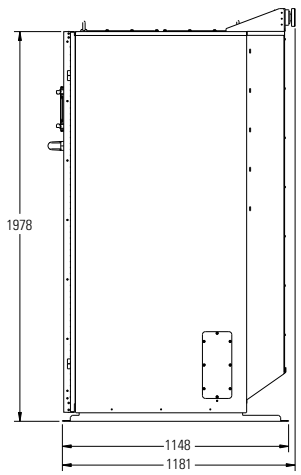
Eaton 9PHD Marine 30 kW–100 kW



Rear Exhaust



Eaton 9PHD Marine 80 kW–200 kW



Top Exhaust

Eaton 9PHD Heavy Duty UPS

30–200 kW

Designed, Manufactured and Tested in Finland

Strong and Smart Power Protection

Reliable, Safe and Cost Efficient

Strong design for demanding industrial environments

- Protection against dirt, dust, water and moist with cover options from IP23 to IP54
- Conformally coated PCB boards
- Strong cabinet for vibration and seismic environments
- 1.5mm cover plates for robust use

Smart technology for maximizing reliability

- Touch screen display for easier operation
- Modular design allows building fault tolerant N+1 units
- Redundant monitored cooling fans in each power module
- Battery start feature
- Eaton's unique Hot Sync wireless paralleling for building n+1 systems with several UPS units

Smart technology for minimizing operating cost

- The 9PHD UPS sets new standards, with an operating efficiency level up to 97% in double conversion mode
- > 99% superior efficiency is delivered in Energy Saver System mode (ESS)
- Power factor 1 increases unit power by 10-20% compared to average UPS

Easy deployment for optimizing installation costs

- Front access for installation and service
- Lifting lugs for easier unit handling during installation
- Suitable for 3-wire and 4-wire networks and voltage range of 380 V-480 V without transformers
- Small footprint due compact power electronics and internal transformer options
- Cabinet supports use of halogen free cables, double cables or large cables for installation

Safe installation and operation

- Unit has halogen free cables
- Connectors in battery strings to increase safety during battery replacement
- Battery breaker inside battery cabinet isolated from hydrogen gases
- Internal maintenance bypass switch and rectifier input switch up to 150 kW

Eaton 9PHD Industrial 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%	
Inverter/rectifier topology	Transformer-free IGBT with PWM	
Audible noise	30–50 kW:	< 60 dBA
	80–200 kW:	< 65 dBA
	ESS operation:	< 47 dBA
Ambient temperature	0°C to 40°C at 1000m altitude, higher temperatures are optional	
Ingress protection	IP23, Optional: IP33;IP54	

Input		
Input wiring	3ph + N + PE / 3ph + PE	
Nominal voltage rating (configurable)	380 V-480 V, 50/60 Hz	
With optional transformer	208 V- 690 V, 50/60 Hz	
Input voltage range	Rectifier input + 20%, if voltage > 440 V +10% Low -15% at 100% load, -40% at 50% load without battery discharge Bypass +10% - (-15%)	
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, Ni-Cd	
Charging method	ABM technology or Float	
Temperature compensation	Optional	
Battery nominal voltage (VRLA)	From 432 V (36 x 12 V, 216 cells) to 480 V (40 x 12 V, 240 cells) **Note:** Strings with different battery voltage may not be paralleled!	
Charging current maximum*	30–50 kW	29.3 A
	80–100 kW	58.6 A
	120–150 kW	87.9 A
	160–200 kW	117.2 A
Battery start capability	Yes	

* when load level ≤ 40 kW/UPM

Output	
Output wiring	3ph + N + PE/ 3ph + PE
Nominal voltage rating (configurable)	380 V-480 V, 50/60 Hz
With optional transformer	208 V- 690 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% **Note:** Bypass fuses may limit the overload capability

Accessories

Accessories for UPS:

Internal transformers; Cabinet protection IP33, IP54; Vibration dampers with mounting brackets; Seismic kit; ATS automatic transfer switch; Single feed kit; Earth fault monitoring; 24V Emergency Power Off (EPO); Special system voltages

Accessory cabinets:

Industrial battery cabinets with long-life batteries; Matching transformer cabinet for one or two transformers; External maintenance bypass switch.

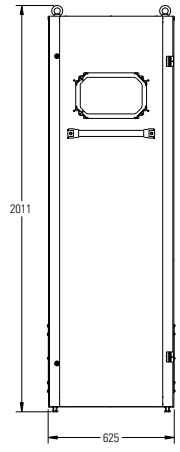
Communication options:

Web/SNMP; ModBus/Jbus; Industrial Relay

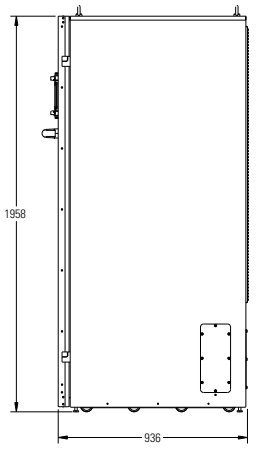
Communications	
MiniSlot	4 communication bays
Serial ports	Built-in host and device USB
Relay inputs/outputs	5 relay inputs and dedicated EPO 1 relay output

Compliance with standards	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3
Seismic testing	NEBS GR-63-CORE, Zone 4

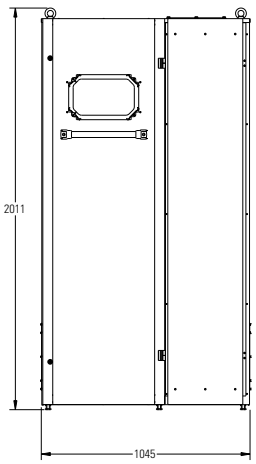
Due to continuous product imrovement programmes, specifications are subject to change without notice.



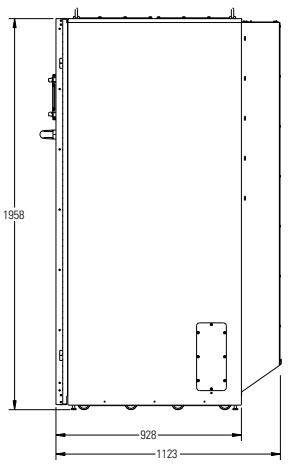
Eaton 9PHD Industrial 30 kW–100 kW



Rear Exhaust



Eaton 9PHD Industrial 80 kW–200 kW



Top Exhaust

Eaton ATS

Eaton ATS 16 Netpack

Eaton ATS 30

Power Source Transfer Switch

Seamless power transfer

Eaton ATS are designed to provide power supply redundancy for single connection equipment. With ATS, power from two independent sources can be supplied to IT equipment, which have only one input power supply.

Redundancy

Only advanced servers are equipped with a dual electrical power supply. The majority of network devices and entry-level servers have a single connection with only one electrical power input. With the Eaton ATS, critical equipment can be connected to a redundant power supply.

Both sources (primary and secondary) are connected in a straightforward manner to the ATS in the base of the rack. The Eaton ATS then controls the redundancy of this electrical power supply. If the primary source fails, transfer to the secondary source is automatic and instantaneous.

Simple and cost-effective

Considering the advanced design of the Eaton ATS, these are highly competitive in price compared with the 'dual power supply' options available from suppliers of networking equipment.

1U high, the unit can be installed easily within the rack. Metering and basic configuration capabilities are possible through ATS 16's LCD.

Network connectivity

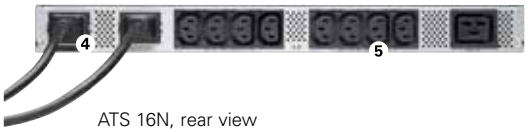
The ATS 16 Netpack and ATS 30 provide network connectivity. This allows users to access, configure and manage units from remote locations.

Eaton ATS

1 LCD with metering and basic configuration capabilities
2 RS232 serial port
3 Network NMC card (on netpack version

ATS 16N, front view

4 Input connections (2 x IEC C20)
5 Outputs (8 x IEC C13 + 1 x IEC C19)



ATS 16N, rear view

1 User interface
- Source status
- STS status

2 Hardwired inputs and output
3 Network connection and web interface

ATS 30

TECHNICAL SPECIFICATIONS

	ATS 16	ATS 16 Netpack	ATS 30
Nominal current	16 A	16A	30 A*
Input/output			
Nominal voltage/input frequency	208/220/230/240 V ; 50/60 Hz	208/220/230/240 V ; 50/60 Hz	220/230/240 V ; 50/60 Hz
Performance			
Typical transfer time	8 ms		
Safety	IEC/EN 62310-1, IEC/EN 60950-1	IEC/EN 62310-1, IEC/EN 60950-1	IEC/EN 60950-1
EMC	IEC/EN 62310-2		
Marking	CE		
Connection			
Inputs	2 IEC C20 + 2 input cables	2 IEC C20 + 2 input cables	Hardwired
Outputs	8 IEC C13 + 1 IEC C19	8 IEC C13 + 1 IEC C19	Hardwired
Communication and user interface			
User interface	LCD	LCD	LED
Network communication	No	Yes	Yes
Dimensions and weight			
Dimensions H x W x D	43 x 430 x 250 mm	43 x 430 x 250 mm	43 x 440 x 390
Weight	3,3 kg	3,5 kg	5 kg
Customer Service & Support			
2 years guarantee	Standard exchange of the product		

* 30A up to 35°C, 25.6A up to 40°C.

Part Numbers	ATS 16	ATS 16 Netpack	ATS 30
ATS	EATS16	EATS16N	EATS30N
Set of two 16 A connecting cables IEC female connector / USE-DIN male connector l engtth 1.5 m	CBLATSIN16X2		
1 cable / IEC 10 A male to IEC 16 A female	66 029		

In the interests of continuous product improvement all specifications are subject to change without notice.

Eaton FlexPDU
Eaton HotSwap MBP

FlexPDU range

HotSwap MBP range

Power distribution

The no hassle solution for improving availability and adding flexibility for single phase UPSs.

Eaton FlexPDU

Having the right connectors just where you need them

- FlexPDUs (Power Distribution Units) are flexible mounting multiway socket blocks for easy connection of multiple loads either as free-standing or on rack-mounted UPSs
- FlexPDUs have a large number of sockets (8 French or Schuko sockets, 6 BS sockets or 12 IEC 10 A sockets) which fit into a very compact unit (1U - 19")
- FlexPDUs are easy to implement into any type of installation: they can be rack mounted horizontally (1U) or vertically or directly onto all Eaton RT format (rack/tower) UPSs

Eaton HotSwap MBP

- High availability for all UPSs up to 11 kVA.
- HotSwap MBP provides a maintenance bypass for all UPSs. UPSs can be hot swapped or upgraded without interrupting the power supply.
- HotSwap MBP are available with multiple power ratings: 3000 VA, 6000 VA, 11000 VA, 11000 VA (3 ph Input).
- HotSwap MBP provides compatibility with any UPS now and in the future from Eaton or any other supplier
- The HotSwap MBP 3000 VA is available with different output connectors: French, Schuko, British, IEC or terminal blocks (Hard-Wired version).
- When used with a 9PX or 9SX the HotSwap MBP 6000 VA and above are providing information on the Bypass status through the UPS LCD screen.
- HotSwap MBP units can be installed as required; at the back, side, top of the UPSs, or rack-mounted.

Hotswap MBP6Ki & MBP11ki

Eaton FlexPDU
Eaton HotSwap MBP

1 Flexible system for 19" rack-mounting or on Eaton RT UPSs
2 French/Schuko/British/IEC 10 A sockets
3 IEC 16 A output for cascading
4 IEC 16 A input socket
5 Retaining clip
6 Rotary bypass switch
7 Colour coded input and output sockets for connecting the UPS
NB: hard-wired version available

HotSwap MBP 3000

HotSwap MBP 11000

1 Flexible system for 19" rack-mounting or on Eaton 9PX/SX UPSs
2 Input/Output
3 4 IEC 16 A sockets with Retaining clip
4 Rotary bypass switch

TECHNICAL SPECIFICATIONS

		Eaton FlexPDU	Eaton HotSwap MBP 3000	Eaton HotSwap MBP 6000	Eaton HotSwap MBP 11000
Maximum power		3000 VA	3000 VA	6000 VA	11000 VA
Nominal Voltage		220 - 240 V			200-240 V (350 - 430 V for 3 ph version)
Installation					
Format		1U (except BS) 19" rack-mounting with multi-position mountings	>1U 19" rack-mounting with multi-position mountings	3U 19" rack	3U 19" rack
Installation		19" rack, wall mounting or on Eaton RT UPSs		19" rack, wall mounting or on Eaton 9PX/SX UPSs	
Dimensions H x W x D		44 x 483 x 80 mm (BS: 52 x 483 x 120 mm)	52 x 483 x 120 mm	52 x 483 x 120 mm	89 x 483 x 90 mm
Connection					
Inputs		1 IEC C20 (16 A) connector and 2 cables (1 IEC 16 A - 16 A cable and 1 IEC 10 A - 16 A cable) for connection to any UPS	FR / DIN / BS / IEC models: 1 IEC C20 (16 A) connector and 1 IEC 16 A - 16 A cable (1) HW (Hard-Wired): terminal block	Hardwired terminal block	Hardwired terminal block
Outputs	FR	8 French sockets + 1 IEC 16 A socket	4 French sockets + 1 IEC 16 A socket	/	/
	DIN	8 Schuko sockets + 1 IEC 16 A socket	4 Schuko sockets + 1 IEC 16 A socket	/	/
	BS	6 British sockets + 1 IEC 16 A socket (with 2 circuit breakers)	3 British sockets + 1 IEC 16 A socket (with 1 circuit breaker)	/	/
	IEC	12 IEC 10 A sockets + 1 IEC 16 A socket (with 2 circuit breakers)	6 IEC sockets + 1 IEC 16 A sockets (with 1 circuit breaker)	"3 IEC 10 A sockets + 2 IEC 16 A sockets (with 3 circuit breakers) + Terminal blocks	4 IEC 16 A sockets (with 4 circuit breakers)+ Terminal blocks
	HW	NA	Terminal block		
Cascading		Yes, IEC 16 A output socket			
Retaining clips		Retaining clips on the IEC output sockets			
Operating conditions and approvals					
Operating temperature		0°C to 45°C continuous		0°C to 40°C continuous	
Approvals		CE			

1: Use cable kits P/N CBLMBP 10EU (FR/DIN) or CBLMBP 10BS (BS) for connecting a low power UPS <2.2 kVA (with IEC 10 A outputs) - see below.

Part Numbers	Eaton FlexPDU	Eaton HotSwap MBP 3000	Eaton HotSwap MBP 6000	Eaton HotSwap MBP 11000
FR	FlexPDU 8 FR: EFLX8F	HotSwap MBP 4 FR: MBP3KIF	/	
DIN	FlexPDU 8 DIN: EFLX8D	HotSwap MBP 4 DIN: MBP3KID	/	
BS	FlexPDU 6 BS: EFLX6B	HotSwap MBP 3 BS: MBP3KIB	/	
IEC	FlexPDU 12 IEC: EFLX12I	HotSwap MBP 6 IEC: MBP3KI	MBP6Ki	1Phase In/Out : MBP11Ki, 3Phase In/1 Phase Out: MBP11Ki31
HW (Hard-Wired)	/	HotSwap MBP HW: MBP3KIH		
10A BS power cords for HotSwap MBP	/	CBLMBP10BS		
10A FR/DIN power cords for HotSwap MBP	/	CBLMBP10EU		

FR | DIN/ Schuko | BS | IEC C13 10 A | IEC C19 16 A | IEC C14 10 A | IEC C20 16 A

Eaton ePDUs G3

This Industry-leading platform enables you to:

- Reliably distribute power to your IT equipment
- Accurately meter and control power consumption
- See where you have available power and are most efficient
- Choose the level of metering to provide the level of information that you require
- Choose equipment switching to allow remote data centre control

Eaton's 3rd generation power distribution technology

The ePDU G3 platform is designed to provide reliable, cost effective power distribution together with highly accurate monitoring and control for IT equipment in the datacentre.

Eaton offers two types of ePDU:

1. Standard range

This range is produced in large quantities and is readily available.

The standard range consists of 6 technologies to meet the needs for IT equipment in the datacentre:

- **Basic ePDUs:** Basic Reliable Power Distribution with integrated plug retention
- **In Line Metered ePDUs:** Add Metering to upgrade existing basic PDUs
- **Metered Input ePDUs:** Meter the input and branch circuits
- **Metered Outlet ePDUs:** Meter the input, branch, individual outlets and IT equipment across A and B feed
- **Switched ePDUs:** Switch individual outlets and IT equipment across A and B feed, plus input and branch metering
- **Managed:** Both Switch and Meter individual outlets and IT equipment across A and B feed

2. Custom range. Need something special?

- Dedicated engineering teams in 3 centres of excellence are available to create your perfect ePDU
- Specific configurations or complete engineering projects
- Including national socket types, UK, French, Din/Schuko – including combinations of up to 3 types of outlet on an ePDU

Options/Accessories:

List of compatible accessories available on page 79

How do Eaton meet ePDU market needs?

How do I ensure that my IT equipment is protected against IEC plugs being accidentally knocked out during maintenance or come lose through vibration?

Integrated Grip

IEC Plug Retention: Prevents accidental disconnect from being bumped or from vibration. Works with any IEC plug, no need to buy special cables or brackets.

How do I ensure that costs can be appropriately attributed or billed for department billing and colocation data centers?

IEC +/-1% Billing Grade Accuracy

Meter your energy consumption (kWh) plus V, W and A extremely accurately.

Choose your level of Metering

From ePDU to branch circuit to individual pieces of equipment, including metering kWh for IT equipment over A and B feeds.

ePDU integration into vRealize Operations Manager*
*coming in 2018

How can I ensure business uptime if the power goes down?

Full integration into VMware and Citrix with Intelligent Power Manager

- Trigger VM migration or VMware Site Recovery Manager (SRM)
- User configurable alerts on the ePDU G3 work with Eaton's Intelligent Power Manager (IPM) software to trigger actions
- Trigger automatic migration of virtual servers in the event of a power failure via UPS, ePDU alarm or threshold, temperature/humidity or dry contact event
- User configurable: includes feed going down, branch circuit reaching a defined threshold etc.
- Full integration in VMware interface

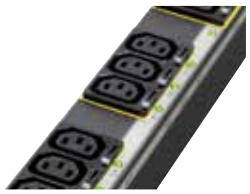
How do I ensure that my PDUs will fit in all my different racks?
How do I ensure that nothing interferes with my IT Equipment and hot-swap components?

Small with Flexible Mounting

- Easily access hot-swappable IT equipment and components.
- Ensure the ePDU, plugs and cables are completely out of the way of equipment with button mount on the rear and sides
- Unique patented variable mounting system can be mounted at any point on the ePDU and gives full flexibility

Low profile chassis

- The ePDU doesn't protrude into the rack and is low profile even at the breakers
- 52 mm wide x 53 mm high and 58.7 mm at breakers on most models
- Hydraulic-Magnetic Circuit Breakers include accidental-tip protection by default



How can I operate remotely with lights-out control, including remote re-booting, scheduled shut downs and restarts?

Equipment Switching

Switch individual outlets or group to switch equipment with multiple inputs, over multiple ePDUs for A and B feed, including sequencing and scheduled shut-down and restart.

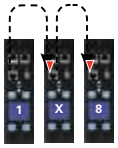
How do I avoid downtime if a rack PDU becomes faulty or I want to upgrade?

No Downtime on Upgrades

ePDU G3 has Hot-Swap network components – update or change without changing the outlet state.

Simplify load balancing

Colour coding and laser engraved chassis easily link breakers to outlet groups.



How can I reduce the cost of networking for monitoring rack PDUs and reduce network traffic?

Daisy-Chain 8 ePDUs from one IP port and one IP address

This reduces the cost of networking, reduces IP addresses and data packets on the network. Daisy Chaining reduces network infrastructure costs by up to 87%.

ePDU G3 Key features & technical specification

Also available in **1U** **2U**

		Basic	In-Line Metered	Metered Input
Basic features	Built-in **IEC outlet eGrip retention,** retains all standard IEC plugs	√	NA	√
	Colour-coded outlet and branch circuits for simple load balancing	√	NA	√
	60°C Operating temperature	√	√	√
	Flexible mounting options: Button mounting on rear & side + variable mounting system	√	√	√
Standard features	**Hot-Swap Control module** with **Advanced LCD** + Optional **Temp/Humidity sensor**		√	√
	±1% IEC Class 1 Billing Grade Accuracy for V, W, A and kWh & Cisco **EnergyWise** compliant		√	√
	Phase Metering, **Circuit Breaker** Current Metering and **Input** Metering		√	√
	Daisy-Chain up to 8 ePDUs, reduce network infratsructure costs		√	√
	En **masse configuration** and advanced action on **virtual environement** via **Eaton Intelligent Power Manager IT**		√	√
	Power chain monitoring & Real time Intelligence on your Data Center, via Eaton **Intelligent Power Manager Infrastructure**		√	√
	HTTPS, SSL, Telnet, FTP, SNMP, SMTP, DHCP, LDAP, RADIUS, DHCP 66/67 for Mass Configuration		√	√
Advanced features	Circuit Breaker Status Monitoring			
	Outlet and IT Equipment Metering across A and B feed			
	Level 3 PUE measurements			
	Turn off unused outlets to control commissioning			
	Outlet and IT Equipment **Switching/reboot /sequencing** across A and B feed			

	Input Type / Rating (A)	Outlet type: Qty	Breakers	Nominal Power		Basic p/n	Dimensions L x W x D, mm	In-Line Metered & Dual p/n	Dimensions L x W x D, mm		Metered Input p/n	Dimensions L x W x D, mm
1 Phase	**C14 10A**	8xC13		2.3kW		EBAB02	443x19"x53			1U	EMIH02	1Ux19"x203
		12xC13		2.3kW		EBAB19	443x19"x53					
		16xC13		2.3kW		EBAB03	704x52x53				EMIB03	1070x52x53
	C20 16A	8xFR: 1xC19		3.7kW	1U	EFLX8F*	1Ux19"x80					
		8xGE: 1xC19		3.7kW	1U	EFLX8D*	1Ux19"x80					
		6xUK: 1xC19	2 single pole	3.7kW		EFLX6B*	52x19"x120					
		12xC13: 1xC19	2 single pole	3.7kW	1U	EFLX12I*	1Ux19"x80					
		16xC13		3.7kW		EBAB21	704x52x53					
		8xC13		3.7kW						1U	EMIH28	1Ux19"x203
		20xC13: 4xC19		3.7kW		EBAB22	1070x52x53				EMIB22	1070x52x53
	IEC60309 16A	7xC13 : 1xC19		3.7kW								
		20xC13 : 4xC19		3.7kW		EBAB04	1070x52x53				EMIB04	1070x52x53
		IEC60309		3.7kW				EILB13	443x52x53			
	2 x IEC60309 16A	2xIEC60309		3.7kW				EILB24	443x65x52			
	IEC60309 32A	12xC13 : 4xC19	2 single pole	7,4kW							EMIB06	1070x52x53
										2U	EMIH06	2Ux19"x127
		20xC13 : 4xC19	2 single pole	7.4kW		EBAB05	1070x52x53				EMIB05	1154x52x53
		28xC13 : 4xC19	2 single pole	7.4kW								
		36xC13 : 6xC19	2 single pole	7.4kW		EBAB08	1604x52x53				EMIB08	1604x52x53
		IEC60309		7.4kW				EILB14	443x52x53			
	2 x IEC60309 32A	2xIEC60309		7.4kW				EILB25	443x65x52			
3 Phase	**IEC60309 16A**	21xC13 : 3xC19		11kW		EBAB20	1070x52x53				EMIB20	1070x52x53
		36xC13 : 6xC19		11kW		EBAB00	1604x52x53				EMIB00	1829x52x53
	IEC60309 32A	3xC13 : 6xC19	6 single pole	22kW		EBAB01	704x52x53					
		6xC13 : 12xC19	6 single pole	22kW							EMIB07	1604x52x53
		18xC13 : 6xC19	6 single pole	22kW								
		12xC13 : 12xC19	6 single pole	22kW							EMIB12	1604x52x53
		24xC13 : 6xC19	6 single pole	22kW		EBAB32	1154x52x53				EMIB32	1604x52x53
		30xC13 : 12xC19	6 single pole	22kW							EMIB34	1829x52x65
		IEC60309		22kW				EILB15	443x52x53			
	2 x IEC60309 33A	2xIEC60309		22kW				EILB26	443x65x52			

* Basic G3 features not applicable for the FlexPDU range
All standard ePDUs come with 3m cable

Need Something Special? We make your custom ePDUs, please contact your local reseller.
Standard models above are stocked in Europe.

Metered Outlet	Switched	Managed
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√	√	√
√		√
√		√
	√	√
	√	√

	Metered Outlet p/n	Dimensions L x W x D, mm		Switched p/n	Dimensions L x W x D, mm		Managed p/n	Dimensions L x W x D, mm
	EMOB03	1154x52x53		ESWB03	1154x52x53		EMAB03	1154x52x53
1U	EMOH28	1Ux19"x203	1U	ESWH28	1Ux19"x203	1U	EMAH28	1Ux19"x203
	EMOB22	1604x52x53		ESWB22	1604x52x53		EMAB22	1604x52x53
				ESWB23	704x52x65			
	EMOB04	1604x52x53		ESWB04	1604x52x53		EMAB04	1604x52x53
						2U	EMAH06	2Ux19"x225
	EMOB05	1604x52x53		ESWB05	1604x52x53		EMAB05	1604x52x53
	EMOB71	1829x52x53					EMAB71	1829x52x53
	EMOB20	1604x52x53		ESWB20	1604x52x53		EMAB20	1604x52x53
							EMAB33	1829x52x65
							EMAB12	1829x52x65

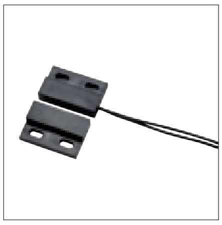
ePDU G3 Accessories

Accessories	Part Number	Benefits
Sensor	EMP001	Get live measurement on temperature, humidity, set threshold and be notified in real time
Adaptor Fast Ethernet Gigabit	GBCONV	Quick and easy way to upgrade your 10/100 Mb network interface G3 ePDU to Gigabit speed
ePDU to UPS cables	CBLOUT32 CBL2OUT32	Connect an ePDU 32A input to the hardwire output UPS
Water leak detector*	WLD012	Detect floods and water leaks
Door contact sensor*	DCS001	Monitor your rack access
Intelligent Power Manager	IPM Basic, Silver, Gold	Monitor and managed multiple ePDUs Trigger actions from ePDUs & sensor events

*Door contact sensor and water leak detector can be connected through EMP001 dry contacts

GBCONV

EMP001



DCS001*

WLD012*

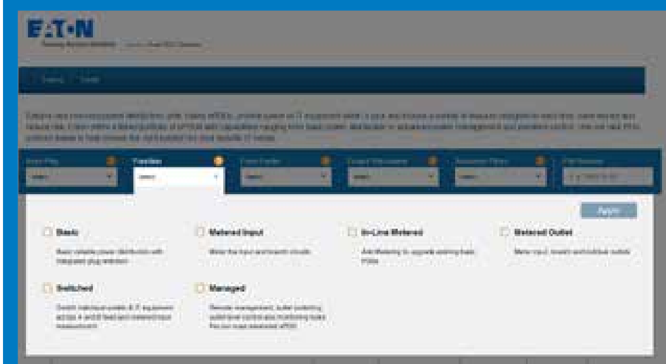
CBL2OUT32

CBLOUT32

All ePDU G3 come with a 2 years warranty as standard.

Warranty extension up to 3 years (Warranty+) and 5 years (Warranty 5) available

New Rack PDU Selector



rackpduselector.eaton.com/gb

From, input plugs to form factors and measurement features, Eaton's Rack PDU selector tool can help you find the right solution for your specific IT needs.

Eaton ePDU Basic G3 has a compliant environmental declaration

Power management for IT equipment

Intelligent Power Software

Eaton Intelligent Power Software integrates seamlessly with your power hardware **to provide unparalleled business continuity capabilities**. It manages all network connected power infrastructure, triggers virtual machine migration plans and shuts down non-essential devices in order to keep your business running during power events. Seamless integration with leading virtualisation environments enables simplified management from a single pane of glass.

Intelligent Power software suite consists in 3 parts:

- **UPS Companion:** provides safe system shutdown for SOHO, small business & Residential users looking for an easy way to enhance the protection capabilities of their Eaton UPS.
- **Intelligent Power Protector (IPP):** helps you avoid data loss by gracefully shutting down computers and servers powered by an Eaton UPS during an extended power outage. Can be remotely managed, configured and updated with Eaton's Intelligent Power Manager.
- **Intelligent Power Manager (IPM):** monitor and manage multiple UPS and ePDU devices across your network from a single interface — any device with a Web browser or virtual machine manager software dashboard.

- Instantly access critical information, such as UPS battery condition, load levels and battery runtime
- Remotely and gracefully shut down servers and select storage devices during a power event
- Prioritise and shed non-critical loads to extend runtime during an extended power outage
- Integration with platforms like vCenter and XenCenter™ helps datacentre managers reduce infrastructure and operating costs while increasing uptime, productivity and operational responsiveness
- View critical power information on devices including UPSs, ePDUs and environmental sensors from the vCenter or XenCenter dashboard
- Trigger vMotion, XenMotion™ and other migration applications to transparently move virtual machines to an available server on the network

vmware PARTNER TECHNOLOGY ALLIANCE

redhat READY

CITRIX ready™

Microsoft Partner Network

Intelligent Power Manager capability overview by license

Intelligent Power Manager (IPM) offers two editions — the Manage Edition and the Optimize Edition.

The Manage Edition is a free download for up to 10 power devices. Paid tiers are available for larger deployments.

The Optimize Edition—our premium offering—provides the most complete set of capabilities for implementing power management strategies in virtual and hybrid environments including the ability to monitor and manage third-party power devices in addition to Eaton equipment.

Trial Licenses are available upon request. Please contact your local Eaton account representative or support team to obtain a trial license.

The table below outlines the capabilities of each edition.

Standard Power Management Features	Manage	Optimize	Benefits
Protected Servers (IPP) and Virtual Servers	•	•	Gracefully shutdown servers.
Storage Shutdown Module	•	•	Remotely shutdown select storage devices.
Generic Drivers and Third Party Devices	•	•	Monitor 3rd party devices via a generic SNMP driver.
Configuration Policy	•	•	Create power & environmental event business continuity policies for groups of devices.
Control ePDU outlets	•	•	Enable policy based control of ePDU outlets.
Advanced Event Action with Standard Events	•	•	Use standard power events in configuration policies.
Advanced Event Action with Custom Events	-	•	Use custom user defined events in configuration policies.
Generic SSH action	-	•	Easily configure custom actions on any SSH enabled device.
3rd party power device support	-	•	Create business continuity policies on events generated by supported 3rd party devices.

Virtual Infrastructure Features	Manage	Optimize	Benefits
Plugin for VMware vCenter	•	•	Integrate power management into your vCenter environment.
Plugin for Citrix XenCenter	•	•	Integrate power management into your XenCenter environment.
Basic Power Actions: • Shutdown Storage Devices • Shutdown Virtual Hosts • Shutdown Virtual Machines • Enter/Exit Maintenance Mode	•*	•	Perform basic graceful shutdown actions in business continuity policies by shutting down virtual machines, virtual hosts, shutting down select storage devices and/or by entering/exiting maintenance mode.
Advanced Power Actions: For VM/Volume: • Load shedding • Shutdown Targeted Virtual Machines • Migrate Virtual Machines to Targeted Hosts • Automatic VM group assignment For Hosts: • Shutdown VMware vApp • Automate VMware SRM Recovery Plan	-	•	Reduce power load by integrating policy driven VM load shedding into your business continuity policies Target a specific VM or groups of VMs for shutdown and/or migration in load shedding policies Target VMware vApps for shutdown in load shedding policies Automatically trigger the execution of your VMware SRM Recovery Plan when runtime hits a predefined threshold.
Virtual IT Infrastructure Level: • Fully virtualized VMware cluster shutdown • VMware vSAN shutdown • Nutanix Acropolis shutdown	-	•	Enable 100% safe shutdown and restore of VMs and host servers in high availability environments.

3rd Party IT Solution Connectors	Manage	Optimize	Benefits
Cisco UCS Manager	•	•	Dynamically power cap Cisco UCS devices in your business continuity policies
NetApp Storage	•	•	Trigger the shutdown of NetApp storage devices in your business continuity policies
CA Nimsoft	•	•	Open IPM from directly within Nimsoft

Management Packs	Manage	Optimize	Benefits
Eaton IPM Management Pack for VMware vRealize Operations Manager	-	•	Monitor and analyze power information directly from within VMware vRealize

* Not included for Eaton Essential UPS Models (9E and 93E) and all non Eaton UPS Models.
Competitor UPS support requires an Optimize Licence level to enable Basic and Advanced virtualization features.

Operating Systems Compatibility list

			UPS companion	IPP Unix	IPP	IPM
			1.04	1.40	1.53	1.61
Microsoft Partner Network	**Windows Server 2016**	Standard, Enterprise, Essential	Not tested	N/A	✓	✓
	Windows Server 2012 R2	Standard, Enterprise, Essential	✓	N/A	✓	✓
	Windows Server 2012	Standard, Enterprise, Essential	✓	N/A	✓	✓
	Windows Server 2011	Small Business Server and Home Server	✓	N/A	✓	✓
	Windows Server 2008	R1 and R2 (Standard, Enterprise, Datacenter)	✓	N/A	✓	✓
		Small Business Server	✓	N/A	✓	✓
	Windows Server 2003	R2 (Standard, Enterprise, Datacenter)	✓	N/A	✓	N/A
		Small Business Server R2	✓	N/A	✓	N/A
	Windows 10	Standard, Pro and Entreprise	✓	N/A	✓	✓
	Windows 8.1	Standard, Pro and Entreprise	✓	N/A	✓	✓
	Windows 8	Standard, Pro and Entreprise	✓	N/A	✓	✓
	Windows 7	Enterprise, Ultimate, Professional, Home Premium, Home Basic	✓	N/A	✓	✓
	Windows Vista	Enterprise, Ultimate, Business, Professional, Home Premium, Home Basic, Starter	✓	N/A	Not tested	Not tested
	Windows XP	Professional, Home	✓	N/A	✓	N/A
	RedHat	RHEL 7.3, 7.2	N/A	N/A	✓	N/A
		RHEL 6.8, 6.7	N/A	N/A	✓	N/A
		RHEL 5.11	N/A	N/A	✓	N/A
		Fedora Core 25	N/A	N/A	✓	N/A
	SUSE	SLES 12 SP2, SP1	N/A	N/A	✓	N/A
		SLES 11 SP4	N/A	N/A	✓	N/A
		SLES 10 SP4	N/A	N/A	Not tested	N/A
		OpenSuse 13.2, 13.1 and 12.3	N/A	N/A	✓	N/A
	Debian GNU Linux	Debian 8.7	N/A	N/A	✓	N/A
	Ubuntu	16.10	N/A	N/A	✓	N/A
		16.04 LTS	N/A	N/A	✓	N/A
UNIX®	**Oracle (Sun)**	Solaris 10 and 11 for Sparc	N/A	✓	N/A	N/A
		OpenSolaris 10 for Intel (x86 and x86_64)	N/A	✓	N/A	N/A
	HP	HP-UX 11i v2 (11.21) for PA-RISC	N/A	✓	N/A	N/A
		HP-UX 11i v3 (11.31) for PA-RISC	N/A	✓	N/A	N/A
		HP-UX 11i v3 (11.31) for Itanium	N/A	N/A	✓	N/A
	IBM	AIX 6.1 and 7.1 for PowerPC	N/A	✓	N/A	N/A
	VMWare	ESXi 6.5, 6.0 (u2), 5.5 (u3)	N/A	N/A	✓	N/A
	HyperV	Server Core 2016	N/A	N/A	✓	Not tested
		Server Core 2012 R2, 2012	N/A	N/A	✓	Not tested
		Server Core 2008 R2	N/A	N/A	✓	Not tested
	Citrix	XenServer 6.5	N/A	N/A	Not tested	N/A
		XenServer 6.2	N/A	N/A	Not tested	N/A
	Open Source XEN	Xen 2.6 over RHEL 5	N/A	N/A	Not tested	N/A
		Xen 3.2 on Debian 5	N/A	N/A	Not tested	N/A
	KVM	KVM 0.12.1.2 on RHEL 6 and Debian 5	N/A	N/A	Not tested	N/A

✓ Valide N/A Not tested

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.

Network Card-MS

Modbus MS card

Network Card-MS
Web/SNMP adapter (P/N Network-MS) The Eaton Network Card-MS supports SNMP v1 and v3; IP v4 and v6; http, https and SMTP Works with: 5130, 5PX, 9130, EX, 5SC, 5P, 9PX, 9SX, 93E, 93PS and 93PM

PXGX UPS

PXGMS UPS

Network and MODBUS Card-MS
(P/N MODBUS-MS) offers ModBus RTU in addition to Web and SNMP for 5PX, 9130, EX, 5SC, 5P, 9PX, 9SX, 93E, 93PS and 93PM

Power Xpert Gateway X-slot UPS card - PXGX UPS card
(P/N 103007974-5591) - offers ModBus TCP, BACnet IP as well as Web and SNMP interfaces for 9155, 9355, PowerXpert 9395P and BladeUPS.

Environmental Monitoring Probe

BD relay card (for Eaton 9130 UPS)

The Power Xpert Gateway Mini-slot Card
(PXGMS card) is the all-in-one communication solution for 93PM and 93PS UPS. Its web interface delivers a comprehensive view of UPS data even to the level of individual power modules. In addition to web UI function it also communicates with management systems through SNMP v1/v3, Modbus TCP and RTU as well as BACnet IP.

X-Slot relay card

Environmental Monitoring Probe – EMP
(P/N EMP001) - adds temperature, humidity and two contact closure monitoring capability to Web/SNMP cards and ePDUs. 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. EMP works with Network-MS, Network and Modbus – MS, PXGMS and PXGX cards as well as network enabled ePDUs.

Connectivity Options

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, PowerXpert 9395P, BladeUPS. P/N 1014018 for Eaton 9130. C/N RELAY-MS for 5130, 5PX, EX, 5SC, 5P, 9PX, 9SX, 93E and 93PM

Relay MS

Industrial Relay Interface Card Mini Slot

Industrial relay card MiniSlot is the recommended choice when connecting MiniSlot UPSs to automation and facility management systems. Its 5 output relays are rated to 250 Vac/5A. Each relay has its own common connection and Normally Open/Normally Closed (NO/NC). The card also has one digital input.

Industrial Relay Interface Card Mini Slot

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, PowerXpert 9395P, BladeUPS.

X-Slot Modbus card

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, PowerXpert 9395P and BladeUPS.

ViewUPS-X

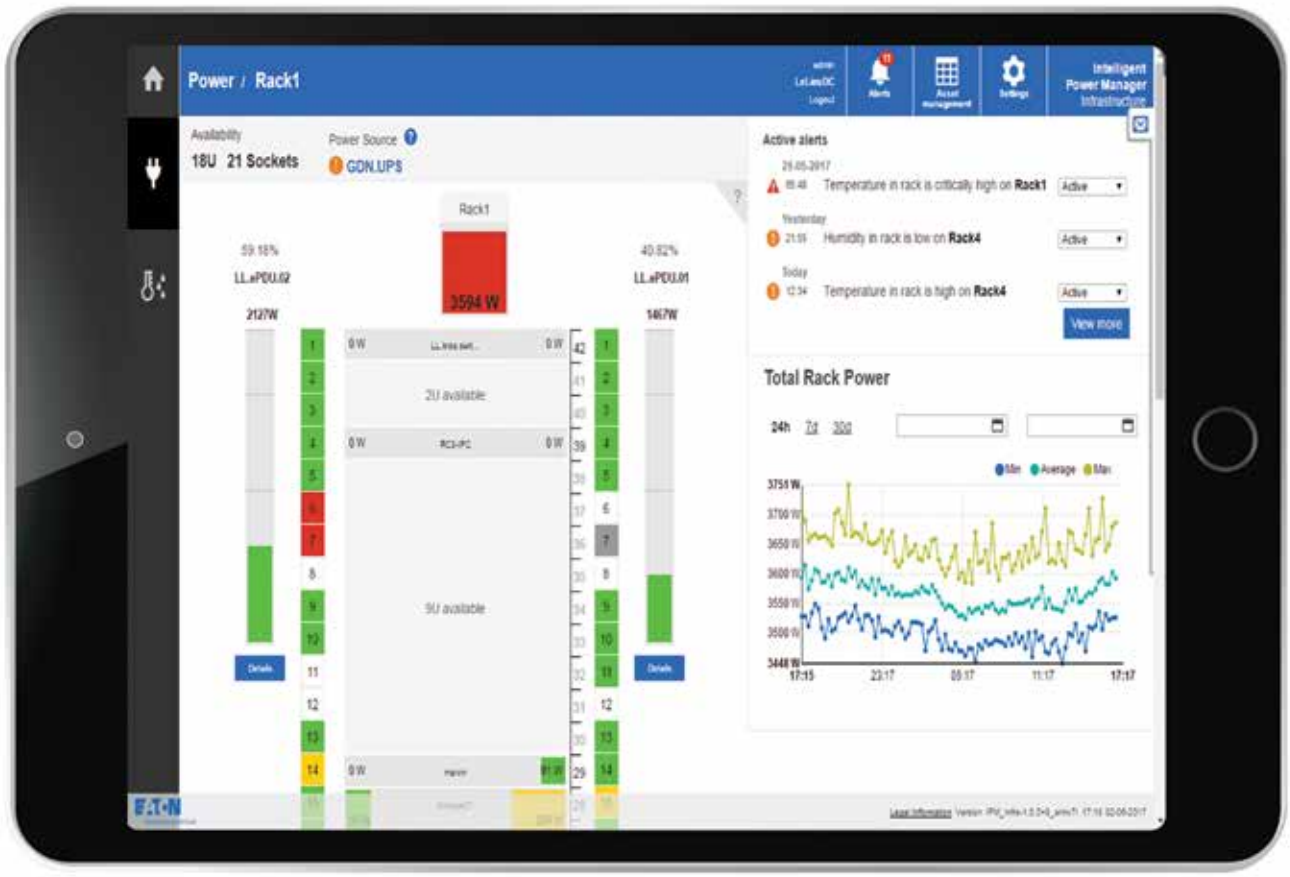
IPM Infrastructure

Environmental monitoring including temperature and humidity with more functionality to follow

Simple IT asset management including business prioritization capabilities

Power chain monitoring including power kW, energy consumption (kWh), phase and circuit balancing

Trending analysis via an intuitive web interface with auditable logs and email alerts



Understanding your infrastructure

IPM Infrastructure gives you a unique insight into what's happening in your data center.

Its power chain monitoring capabilities keep you informed about power usage (kW) and energy consumption (kWh), in addition to phase and circuit balancing. Environmental monitoring covers temperature and humidity while IT asset management helps you manage business prioritization.

All the information gathered from these inputs is reported via an intuitive web interface, with email alerts.

Simple and centralized

IPM Infrastructure has been designed from the start to be easy to use. As a powerful monitoring solution, it has a number of valuable features which make comprehensive data center monitoring intuitive, simple and centralized.

Intuitive, drill-down interface Easily understand physical infrastructure constraints within the context of the IT infrastructure.

Centralized management appliance
The Intelligent Power Controller acts as a local, centralized repository. It is accessible via the network through a powerful, intuitive and responsive HTML5 / AngularJS web interface or SSH.

Simplified capacity management
See and understand the physical infrastructure's available capacity at a glance. Space, power and environmental metrics provide essential information for ensuring business continuity and maximizing IT device operating lifetimes.

Intelligent Power Manager Infrastructure

Real-time intelligence

By providing you with real-time information, IPM Infrastructure enables quick and effective responses to events, to reduce MTTR (Mean Time to Repair).

Real-time monitoring and graphical trending analysis

Real-time device monitoring provides instantaneous visibility of the state of your physical infrastructure and its constraints.

Alert notification

Email, and email to SMS gateway alerts, ensure you are informed of critical alerts in real time.

Trends and evolution

Key power and environmental data is conveniently stored, and converted into easy to use in-application trend indicators and graphs. This means you can better understand how your data center capacity is evolving over time.

Load balancing

By automatically tracking power draw from the UPS through the rack power distribution, IPM Infrastructure helps you to ensure the load is equally distributed across all phases at all times.

Diversity, interoperability, support

You can rely on IPM Infrastructure to support whatever devices you currently operate.

Multi-vendor device support

IPM Infrastructure supports Eaton power devices out of the box, but is based on the 42ITy™ open source project, enabling us to provide vendorneutral data acquisition via the NUT open source engine (www.networkupstools.org). Multi-vendor device support is provided via the SNMP protocol.

Extreme support

If we don't support your SNMP power device out of the box, we'll build a new driver configuration within 72 business hours of receiving your complete device profile information.

Integration

Open RESTful API facilitates third-party application integration.

Application highlights

Data Center Dashboard:
Understand your data center. All the key KPIs you need for peace of mind.

- Total DC energy consumption
- Data Center Temperature
- Humidité du datacenter
- Data Center Humidity
- Power availability KPI
- Trends on all KPIs
- Alert summary

Data Center Power Chain view:
Master your critical power consumption and extrapolate future usage trends.

- Simplified power chain
- UPS overview including phase detail
- Total power consumption per rack
- Total critical power consumption
- Historical power trend graph
- Alert summary

Rack level :
Where IT and Power meet. Understand the intersection of power and physical capacity at a glance.

- Available capacity – outlet and U space
- Installed devices
- Total rack power consumption
- Power consumption per rack PDU
- Feed balance
- Outlet identification per device
- Historical power trend graph
- Alert summary

Simplified asset management:
Manage the lifecycle of your IT devices.

- Installed devices
- Contact details per device
- Business priority per device
- Simple alert notification per device
- Warranty details per device with alert capability
- Import / Export to .csv

Intelligent Power Manager Infrastructure

TECHNICAL SPECIFICATIONS

Intelligent Power Controller 3000

Processing and storage characteristics	
CPU	1GHz Dual Core ARM processor
Boot Flash storage	128 MB
Mass storage	4 GB SD Card
RAM	1 GB
Power connections	
Input	2 x IEC C14 redundant power connectors
Cables	2 x 2m C13 – C14 power cables included
Communication connectors	
Ethernet ports	2 x front facing RJ45 10/100/1000 Ethernet for redundant monitoring network connectivity
	1 x rear facing RJ45 10/100/1000 Ethernet for rack PDU data aggregation
USB ports	4 x USB ports, including 1 x powered 5V/2A
RJ45 Serial ports	4 x RS232 T&H ports with EMP001 auto configuration capability
	8 x RS232 serial ports for future monitoring probe aggregation or device monitoring
	4 x RS232 / RS485 software selectable serial ports for select 3rd party Modbus T&H sensors
Service console port	1 x DB9 serial service port
Dry contact	10 x dry contact terminals for dry contact sensors
Relays	5 x output relays, 12V
Indicators / Display	
LED indicators	2 x Power Feed Status LEDs, 1 x Network Status LED, 1 x Device Power Status LED, 1 x Service Status LED, 1 x Heart Beat LED
Display	1 x Monochrome LCD
Dimensions H x W x D / Weight	
IPC3000 dimensions	42 x 300 x 211 mm
IPC3000 weight	2.2 kg / 4 lbs
Housing	Rack mount; 1U, ½ width
Operating Conditions, standard and approvals	
Operating temperature	Maximum 45° C continuous, for indoor operation only
Operating humidity	Maximum 90%
Noise level	Fanless
Safety Approvals	CE ; cTUVus
Integration	
Open REST API	HTTP/HTTPS RESTful API for integration with 3rd party applications
Protocols	
Supported network protocols	TCP/IP, HTTP, HTTPS, SNMPv1, SNMPv2c, DHCP, DNS, SSH
Graphical User Interface	
Browser support	Desktop: Most recent versions of modern web browsers including MS Internet Explorer, Chrome, Firefox, and Safari Mobile: Most recent versions of modern mobile web browsers
Technology	Fully responsive, HTML 5 & AngularJS client application
Customer Service and Support	
Hardware warranty	2 Year
Software	Free 1 Year IPM Infrastructure Software Subscription included

Accessories

Product Code	Description	Status	Image
EMP001	Temperature and Humidity Sensor	Available	
DCS001	Door contact sensor	Available	
WLD012	Water leak detector	Available	
VIB001	Vibration detector	Available	
SMK001	Smoke detector	Available	
PIR001	PIR motion detector	Available	






Why service matters

Eaton offers a comprehensive range of different service products, which help install, commission and maintain power devices during their life cycle, while meeting your financial constraints and technical requirements.

UPS placement
We help you select the best operating environment for your UPS.

Installation
Our service technicians will help with installing and programming your UPS system. We also provide the necessary connectivity to your own monitoring system or Eaton's remote monitoring.

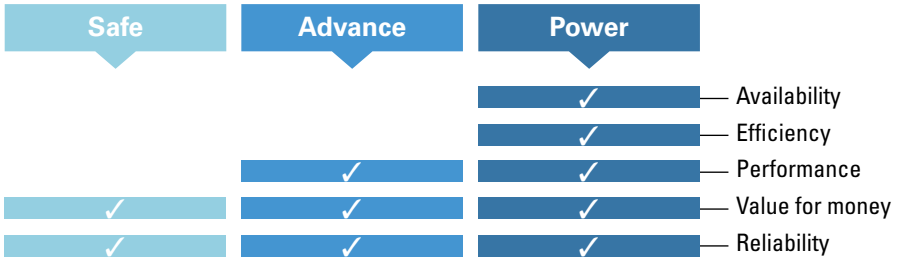
Commissioning/User training
Before your system is commissioned, we thoroughly check UPS connectivity and ensure the new UPS will reliably protect your IT
or production system against all types of electrical disturbances. We start up the UPS system and provide user training.

Maintenance. Service contracts.
An effective maintenance strategy for power infrastructure products can be one of the most cost-effective measures you can take to detect a wide range of ailments before they become serious issues, ensure the ongoing health of power devices, significantly reduce the probability of a load loss event and thus ensure continuity of your entire business. It includes, among other things, 24/7 telephone support, regular preventive service according to factory specifications, battery testing, reporting, recommendations as well as rapid-response repairs as needed and optional remote monitoring of UPS.

Service contracts

At Eaton, we like to keep things simple. So, we have compiled three distinct service plans to match different types of maintenance needs and budgets - **Safe, Advance and Power**.

Whichever plan you choose, you can rest assured it will deliver power security and reliability that will keep your business running.



Make sure you keep going

This maintenance contract includes all the essential services you need to keep your UPS system and your business running safely.

Gives you more financial benefits

Advance contract gives you the same level of service as Safe, but with additional benefits. Because travel and labour are included in the package price, you can draw up your annual service budget more accurately.

Allows you almost to forget about power

The flagship of Eaton service packages gives you complete peace of mind regarding power security. If you opt for a Power contract you will have the expert Eaton service team at your disposal at any time of the day every day of the year.

What is included:

Standard features	Safe	Advance	Power
One preventive maintenance visit per year (during normal working hours)	✓	✓	✓
Technical Updates	✓	✓	✓
Hotline	✓	✓	✓
Repair Service (within working hours)	✓	✓	
Repair Service 24/7			✓
Discount on Labour	✓		
Travel & Labour included		✓	✓
Discount on Spares	✓	✓	
Spare Parts included (excludes batteries except under warranty)			✓
Emergency Service response, travel to site within 8 hours (Normal working hours)	✓	✓	
Emergency Service response, travel to site within 8 hours 24/7			✓

Additional Options	Safe	Advance	Power
Additional preventive maintenance visits	✓	✓	✓
Remote monitoring	✓	✓	✓
Batteries replacement included	✓	✓	✓
Discount on Batteries	✓	✓	✓
Emergency Service response 2 hours 24/7	✓	✓	✓
Emergency Service response 4 hours 24/7	✓	✓	✓
Emergency Service response 6 hours 24/7	✓	✓	✓
Emergency Service response 8 hours 24/7	✓	✓	
Spare Parts included (excludes batteries except under warranty)	✓	✓	
Emergency Service response 2 hours (within working hours)	✓	✓	
Emergency Service response 4 hours (within working hours)	✓	✓	
Emergency Service response 6 hours (within working hours)	✓	✓	

Remote monitoring with Eaton SmartQmmunicator

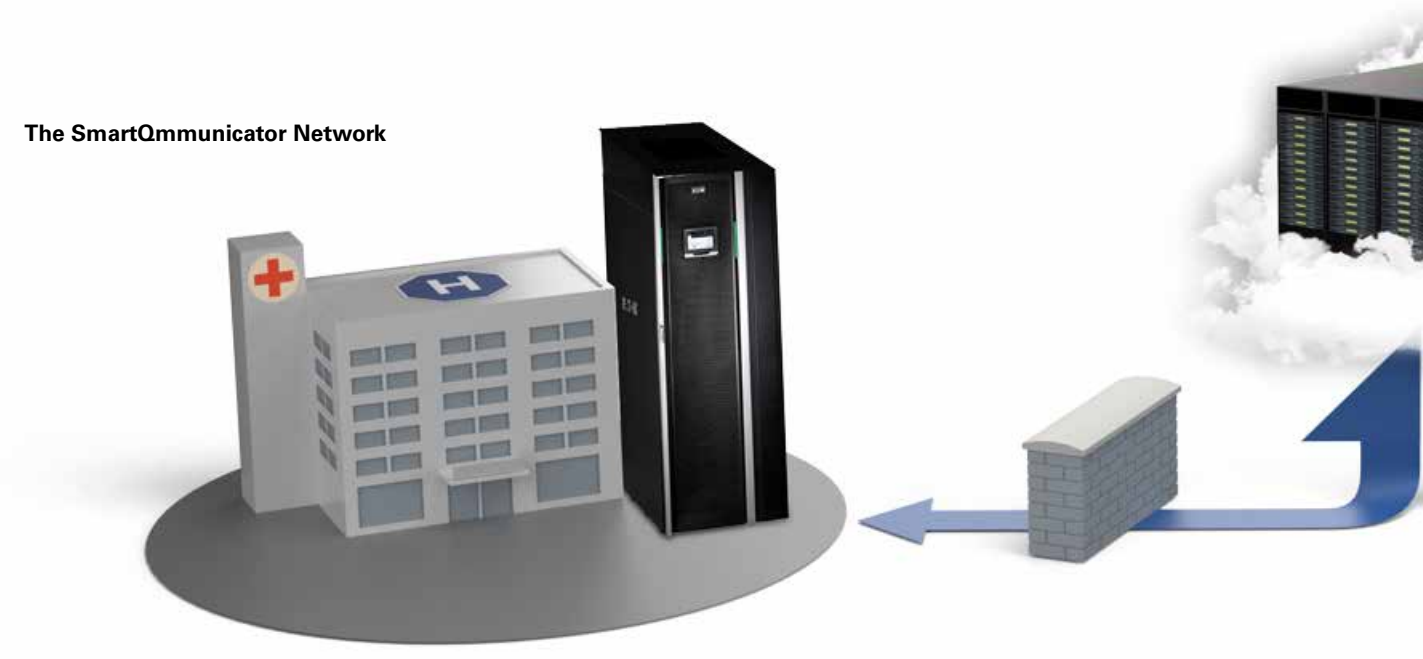
SmartQmmunicator is a complementary remote monitoring service, supervised by trained Eaton product technicians overseeing the performance of customers´ Eaton UPS and battery systems.

Eaton technicians can identify problems before they became load loss events, saving customers money while increasing power reliability and reducing downtime.

Available in either wireless and Ethernet models, the SmartQmmunicator is equipped with firewall-secure technology, enabling a secure and encrypted remote connection.

In the event of incorrect UPS performance, the SmartQmmunicator notifies customer´s IT-department and an Eaton service technician, who will then take action according to customer´s service level agreement.

The SmartQmmunicator Network



Remote monitoring with Eaton SmartQmmunicator

Move to a 24/7 Remote Service

Thanks to SmartQmmunicator, we can offer a new service plan which is both faster and greener: GreenCare.

This plan is designed to provide the highest level of service to cover your needs and offers you the full peace of mind.

GreenCare

GreenCare includes:

- 24/7 System Monitoring by an Eaton specialists
- 24/7 Repair service by an Eaton specialists
- 100% spare parts and labour coverage
- Intervention within 8 hours or less in case of emergency
- Monthly Eaton Health Index Report of the System
- 2 or more physical maintenances in 5 years

*Availability of the GreenCare is country-dependent. Please contact your Eaton service office to check the local agreements.

Quick guide

Through its extensive channel network Eaton offers a range of warranties and service extensions for plug-and-play and hardwired UPSs up to 200kVA power range. The different options available mean you can choose the most beneficial method to safeguard your equipment performance and reliability.

Extended Warranties for new UPS/ePDU

Warranty+1

This service gives you a peace of mind for **1 year** in addition to the standard warranty of the product.

- During this period, the product is covered by a **standard exchange**
- Shipping costs covered by Eaton
- **Professional helpline**
- This offer covers both electronic parts and batteries*

Warranty+3

This service gives you a peace of mind for **3 years** in addition to the standard warranty of the product.

- During this period, the product is covered by a **standard exchange**
- Shipping costs covered by Eaton
- **Professional helpline**
- This offer covers both electronic parts and batteries*

* Batteries are covered only for failures, not reduced autonomy

Warranty Advance

This service provides customers with a higher service level compared to a standard warranty for 3 years:

- **1 on-site intervention** (in case of breakdown) during the first 2 years, simply by contacting the call centre in your country
- **1 maintenance visit** in the last year
- Technical updates
- 25% of discount on spare parts and batteries during 2nd and 3rd year
- A **professional, customised helpline** at your service
- **Emergency response** (travel to site within 8 hours)

Eaton Extended Warranties can be bought only during standard warranty or extended warranty period.

Services for running UPS/ePDU

Extend

This service gives peace of mind for **one additional year** after warranty period expiration:

- UPS/ePDU **standard exchange** on site
- **Professional helpline**
- Fast and efficient service wherever you are located
- Covers electronic parts and batteries*

Battery+

This service provides the correct batteries for your UPS:

- Up to 3 KVA
- **High-speed efficient service** regardless of site location
- Standard **replacement of old batteries**
- Installation instructions for new batteries
- Safety instructions concerning handling of the batteries

Intervention

This distributed service provides an **Eaton technician** for UPS commissioning or a preventive maintenance visit:

- **Professional helpline** to offer support and book intervention dates
- Intervention service can be bought from Eaton resellers at any time during the life of your UPS
- This offer is not intended to be used as a repair service in case of UPS failure

Easy Battery+

This is a service product which is offering Eaton final customers a complete batteries tray to exchange their batteries. The whole batteries exchange process will be therefore much **quicker and safer** than swapping batteries one by one.

Register/activate your service product: www.eaton.eu/registration

*Normal battery aging and « recommend battery replacement» message visible on the display do not imply batteries'faults and therefore are not covered by the warranty

Powering Business Worldwide

www.eaton.eu/upsservice

Extended Warranties for new UPS/ePDU (Electronic format)

Current products	Warranty+1	Warranty+3	Warranty Advance
Off-Line			
Protection Station			
500/650/800	W1001WEB	W3001WEB	-
3S			
3S 550/700	W1001WEB	W3001WEB	-
Ellipse ECO			
Ellipse ECO 500/650/800	W1001WEB	W3001WEB	-
Ellipse ECO 1200/1600	W1002WEB	W3002WEB	-
Line-Interactive			
5E			
5E 500/650/850/1100/1500	W1001WEB	-	-
5E 2000	W1002WEB	-	-
5S			
5S 550/700	W1001WEB	W3001WEB	-
5S 1000/1500	W1002WEB	W3002WEB	-
Ellipse PRO			
Ellipse PRO 650/850/1200	W1002WEB	W3002WEB	-
Ellipse PRO 1600	W1003WEB	W3003WEB	-
5SC			
5SC 500/750	W1002WEB	W3002WEB	-
5SC 1000/1500/1000 Rack	W1003WEB	W3003WEB	-
5SC 1500 Rack	W1004WEB	W3004WEB	-
5SC 2200 RT	W1004WEB	W3004WEB	-
5SC 3000 RT	W1005WEB	W3005WEB	-
5SC 750 120V	W1002WEB	W3002WEB	-
5P			
5P 650	W1002WEB	W3002WEB	-
5P 650 Rack 1U	W1003WEB	W3003WEB	-
5P 850	W1003WEB	W3003WEB	-
5P 850 Rack 1U	W1003WEB	W3003WEB	-
5P 1150	W1003WEB	W3003WEB	-
5P 1150 Rack 1U	W1004WEB	W3004WEB	-
5P 1550	W1004WEB	W3004WEB	-
5P 1550 Rack 1U	W1004WEB	W3004WEB	-
5PX			
5PX 1500	W1004WEB	W3004WEB	-
5PX 2200 RT2U	W1004WEB	W3004WEB	
5PX 2200 RT2U Netpack	W1005WEB	W3005WEB	
5PX 3000	W1005WEB	W3005WEB	-
5PX EBM 48V RT2U	W1003WEB	W3003WEB	
5PX EBM 72V	W1004WEB	W3004WEB	-
5PX 1500 RT2U 120V	W1004WEB	W3004WEB	-
On-Line Double Conversion			
9SX			
9SX 700	W1003WEB	W3003WEB	-
9SX 1000/1500/2000/ 1000 Rack/1500 Rack	W1004WEB	W3004WEB	-
9SX 3000/2000 Rack/ 3000 Rack	W1005WEB	W3005WEB	-
9SX 5000/6000	W1006WEB	W3006WEB	WAD001WEB
9SX 8000	W1007WEB	W3007WEB	WAD001WEB
9SX 11000	W1008WEB	W3008WEB	WAD001WEB
9SX 5000 RT3U	W1006WEB	W3006WEB	WAD001WEB
9SX 6000 RT3U	W1007WEB	W3007WEB	WAD001WEB
9SX 8000/11000 RT6U	W1008WEB	W3008WEB	WAD001WEB
9SX Power Module			
9SX 8000 Power Module	W1006WEB	W3006WEB	WAD001WEB
9SX 11000 Power Module	W1007WEB	W3007WEB	WAD001WEB
9SX EBM			
9SX EBM 36/48V Rack Tower	W1003WEB	W3003WEB	-
9SX EBM 96/72/180V	W1004WEB	W3004WEB	-
9SX EBM 240V	W1004WEB	W3004WEB	-
9SX EBM 240V Tower	W1005WEB	W3005WEB	-
9SX Marine			
9SX Marine 1000	W1004WEB	W3004WEB	-
9SX Marine 3000	W1006WEB	W3006WEB	-
9PX			
9PX 1000	W1004WEB	W3004WEB	-
9PX 1500/2200	W1005WEB	W3005WEB	-
9PX 3000	W1006WEB	W3006WEB	-
9PX 5000 Hotswap/RT3U Netpack	W1007WEB	W3007WEB	WAD001WEB
9PX 6000 Hotswap/RT3U Netpack	W1007WEB	W3007WEB	WAD001WEB
9PX 8/11kVA Hotswap/ RT6U Hotswap Net pack	W1008WEB	W3008WEB	WAD001WEB
9PX 3:1			
9PX 6/8/11kVA 3:1 Hotswap/ RT6U Hotswap Net pack	W1008WEB	W3008WEB	WAD001WEB
9PX Power Module			
9PX 8000i Power Module	W1006WEB	W3006WEB	WAD001WEB
9PX 11000i Power Module	W1007WEB	W3007WEB	WAD001WEB
9PX 6000i 3:1 Power Module	W1006WEB	W3006WEB	WAD001WEB

Current products	Warranty+1	Warranty+3	Warranty Advance
9PX 8000i 3:1 Power Module	W1007WEB	W3007WEB	WAD001WEB
9PX 11000i 3:1 Power Module	W1008WEB	W3008WEB	WAD001WEB
9PX Redundant			
9PX 10/12 kVA	W1008WEB (Qty : 2)	W3008WEB (Qty : 2)	WAD001WEB (Qty : 2)
9PX 16/22 kVA	W1008WEB (Qty : 2)	W3008WEB (Qty : 2)	WAD003WEB (Qty : 2)
9PX Modular Easy			
9PX ModularEasy 6000i	W1004WEB	W3004WEB	-
9PX ModularEasy 11000i	W1005WEB	W3005WEB	-
9PX EBM			
9PX EBM 48/72/180V	W1004WEB	W3004WEB	-
9PX EBM 240V	W1005WEB	W3005WEB	-
9PX Low Voltage			
9PX 1500 RT 120V	W1005WEB	W3005WEB	-
9PX 2000/3000 RT 120V	W1006WEB	W3006WEB	-
9PX Marine			
9PX 1500 Marine	W1006WEB	W3006WEB	-
9PX 3000 Marine	W1007WEB	W3007WEB	-
9PX Marine Filter	W1004WEB	W3004WEB	-
9E			
9E 6000/10000 XL	W1005WEB	-	-
9E 10000	W1006WEB	-	-
9E 15000/20000 XL	W1007WEB	-	WAD001WEB
9E 20000	W1008WEB	-	WAD001WEB
9155			
9155 8/10 kVA	-	-	WAD001WEB
9155 12/15 kVA	-	-	WAD002WEB
9155 20/30 kVA	-	-	WAD003WEB
Blade UPS			
Blade UPS 24 KW	-	-	WAD004WEB
Blade UPS 36 KW	-	-	WAD005WEB
Blade UPS 48 KW	-	-	WAD006WEB
Blade UPS 60 KW	-	-	WAD007WEB
Blade UPS 60 KW N+1	-	-	WAD008WEB
93 PM			
93 PM 30/40 kVA	-	-	WAD004WEB
93 PM 50/60/80 kVA	-	-	WAD005WEB
93 PM 100/120 kVA	-	-	WAD006WEB
93 PM 150/160 kVA	-	-	WAD007WEB
93 PM 200 kVA	-	-	WAD008WEB
93 E			
93 E 15/20 kVA	-	-	WAD001WEB
93 E 30 kVA	-	-	WAD002WEB
93 E 40/60/80 kVA	-	-	WAD003WEB
93 E 100 kVA	-	-	WAD004WEB
93 E 120 kVA	-	-	WAD005WEB
93 E 160 kVA	-	-	WAD006WEB
93 E 200 kVA	-	-	WAD007WEB
93 PS			
93 PS 8/10 kVA	-	-	WAD001WEB
93 PS 15/20 kVA	-	-	WAD002WEB
93 PS (8+8)/(10+10)/30/40 kVA	-	-	WAD003WEB
93 PS (15+15)/(20+20) kVA	-	-	WAD004WEB
Power Distribution, Power management and accessories			
ePDU G3 Basic			
EBAB00/EBAB08/EBAB20	W1003WEB	W3003WEB	-
EBAB01/EBAB11/EBAB32/EBAH11	W1004WEB	W3004WEB	-
EBAB02	W1001WEB	W3001WEB	-
EBAB03/EBAB04/EBAB05/EBAB19/ EBAB21/EBAB22	W1002WEB	W3002WEB	-
ePDU G3 In-Line Metered			
EILB13/EILB14/EILB15/EILB24/EILB25	W1003WEB	W3003WEB	-
EILB26	W1004WEB	W3004WEB	-
ePDU G3 Metered Input			
EMIB00/EMIB07/EMIB08/EMIB11/ EMIB12/EMIB20/EMIB32	W1004WEB	W3004WEB	-
EMIB03/EMIB04/EMIB05/EMIB06/ EMIB09/EMIB10/EMIB16/EMIB17/ EMIB18/EMIB22/EMIH02/EMIH06/ EMIH28	W1003WEB	W3003WEB	-
EMIB34	W1005WEB	W3005WEB	-
ePDU G3 Metered Outlet			
EMOB03/EMOB04/EMOB05/EMOB16/ EMOB17/EMOB18/EMOB20/EMOB22/ EMOB71/EMOH28/EMOH84	W1004WEB	W3004WEB	-
EMOB33	W1005WEB	W3005WEB	-
ePDU G3 Switched			
Switched (all ESWB & ESWH)	W1004WEB	W3004WEB	-
ePDU G3 Managed			
EMAB03/EMAB04/EMAB05/EMAB16/ EMAB17/EMAB18/EMAB22/ EMAH06/EMAH28	W1004WEB	W3004WEB	-

Extended Warranties for new UPS/ePDU (Electronic format)

Current products	Warranty+1	Warranty+3	Warranty Advance
EMAB20/EMAB33/EMAB71	W1005WEB	W3005WEB	-
EMAB12	W1006WEB	W3006WEB	-
FlexPDU & HotSwapMBP			
Flex PDU 6/8/12	W1001WEB	W3001WEB	-
Hotswap MBP	W1002WEB	W3002WEB	-
Hotswap MBP 6000/11000	W1003WEB	W3003WEB	-
Hotswap MBP 11000 3:1	W1004WEB	W3004WEB	-
ATS			
ATS 16/ATS 16N/ATS 30N	W1004WEB	W3004WEB	-

Legacy products	Warranty+	Warranty+3	Warranty Advance
Line-Interactive			
5130			
5130 1250 RT 2U	W1003WEB	W3003WEB	-
5130 1750 RT 2U	W1004WEB	W3004WEB	-
5130 2500/3000 RT 2U/3000 RT 3U	W1005WEB	W3005WEB	-
5130 EBM 1250/1750 /3000	W1003WEB	W3003WEB	-
On-Line Double Conversion			
Eaton EX			
EX 700/1000	W1004WEB	W3004WEB	-
EX 1500	W1005WEB	W3005WEB	-
EX EXB 1000/1500	W1003WEB	W3003WEB	-

Legacy products	Warranty+	Warranty+3	Warranty Advance
Eaton EX / Pulsar M			
EX / Pulsar M 2200 VA 2U/3U	W1005WEB	W3005WEB	-
EX / Pulsar M 3000 VA 2U/3U	W1006WEB	W3006WEB	-
EX /Pulsar M EBM 2200/3000VA	W1004WEB	W3004WEB	-
Eaton EX Marine			
EX Marine 1500 RT2U/2200 RT	W1005WEB	W3005WEB	-
EX Marine 3000 RT	W1006WEB	W3006WEB	-
9130			
9130 700 VA	W1003WEB	W3003WEB	-
9130 1000 VA/1000 RM	W1004WEB	W3004WEB	-
9130 1500 VA/2000/1500 RM/ 2000 RM	W1005WEB	W3005WEB	-
9130 3000 VA/3000 RM	W1006WEB	W3006WEB	-
9130 5000/6000	W1007WEB	W3007WEB	WAD001WEB
9130 EBM 1000 RM	W1002WEB	W3002WEB	-
9130 EBM 1000/1500/1500 RM/ 3000 RM	W1003WEB	W3003WEB	-
9130 EBM 3000	W1004WEB	W3004WEB	-
9130 EBM 6000	W1005WEB	W3005WEB	-
9130 1000 120V	W1004WEB	W3004WEB	-
9130 3000 120V	W1006WEB	W3006WEB	-
9130 Marine			
Eaton 9130 1000 Marine tower	W1004WEB	W3004WEB	-
Eaton 9130 2000/3000 Marine tower	W1005WEB	W3005WEB	-
9355			
9355 8/10 kVA	-	-	WAD001WEB
9355 12/15 kVA	-	-	WAD002WEB
9355 20/30/40 kVA	-	-	WAD003WEB

Services for running UPS/ePDU (Electronic format)

Current Products	Battery +	Easy Battery+	Extend	Intervention
Off-Line				
Protection Station				
Protection Station 500	B68750WEB	-	EXT68600WEB	-
Protection Station 650/800	B68765WEB	-	EXT68600WEB	-
3S				
3S 550	B68750WEB	-	EXT68600WEB	-
3S 700	B68765WEB	-	EXT68600WEB	-
Ellipse ECO				
Ellipse ECO 500	B68750WEB	-	EXT68600WEB	-
Ellipse ECO 650	B68765WEB	-	EXT68600WEB	-
Ellipse ECO 800	B68765WEB	-	EXT68600WEB	-
Ellipse ECO 1200	B68766WEB	-	EXT68600WEB	-
Ellipse ECO 1600	B68766WEB	-	EXT68600WEB	-
Line-Interactive				
5E				
5E 500/650/850/1100/1500/2000	-	-	EXT68600WEB	-
5S				
5S 550	B68750WEB	-	EXT68600WEB	-
5S 700	B68765WEB	-	EXT68600WEB	-
5S 1000/1500	B68766WEB	-	EXT68600WEB	-
Ellipse PRO				
Ellipse PRO 650	B68765WEB	-	EXT68600WEB	-
Ellipse PRO 850	B68765WEB	-	EXT68600WEB	-
Ellipse PRO 1200	B68766WEB	-	EXT68600WEB	-
Ellipse PRO 1600	B68766WEB	-	EXT68600WEB	
5SC				
5SC 500	B68765WEB	-	EXT68600WEB	-
5SC 750/1000	B68766WEB	EB007WEB	EXT68600WEB	-
5SC 1000 Rack	-	EB020WEB	EXT68600WEB	
5SC 1500	B68767WEB	-	EXT68600WEB	-
5SC 1500 Rack	-	EB021WEB	EXT68601WEB	-
5SC 2200 RT	-	EB004WEB	EXT68601WEB	-
5SC 3000 RT	-	EB001WEB	EXT68602WEB	-
5P				
5P 650	B68765WEB	-	EXT68600WEB	-
5P 650 Rack 1U	B68771WEB	EB010WEB	EXT68600WEB	-
5P 850/1150	B68766WEB	EB008WEB	EXT68600WEB	-
5P 850 Rack 1U	B68770WEB	EB011WEB	EXT68600WEB	-
5P 1150 Rack 1U	B68772WEB	EB011WEB	EXT68600WEB	-
5P 1550	B68767WEB	EB009WEB	EXT68601WEB	-
5P 1550 Rack 1U	B68773WEB	EB012WEB	EXT68601WEB	-
5PX				
5PX 1500	B68768WEB	EB004WEB	EXT68601WEB	-
5PX 2200	B68768WEB	EB004WEB	EXT68602WEB	INT001WEB
5PX 3000 2U	B68769WEB	EB001WEB	EXT68602WEB	INT001WEB
5PX 3000 3U	B68769WEB	EB002WEB	EXT68602WEB	INT001WEB

Current Products	Battery +	Easy Battery+	Extend	Intervention
5PX EBM 48V RT2U	B68780WEB	-	EXT68601WEB	
5PX EBM 72V RT3U/RT2U	B68781WEB	-	EXT68601WEB	
On-Line Double Conversion				
9SX				
9SX 700/1000/1500/ Rack	-	-	EXT68602WEB	-
9SX 2000	-	-	EXT68603WEB	INT001WEB
9SX 2000 Rack	-	-	EXT68603WEB	-
9SX 3000	-	-	EXT68604WEB	INT001WEB
9SX 3000 Rack	-	-	EXT68604WEB	-
9SX 5000/6000	-	-	EXT68605WEB	INT001WEB
9SX 5000 RT3U/6000 RT3U	-	EB006WEB	EXT68604WEB	INT001WEB
9SX 8000/11000	-	-	EXT68605WEB	INT002WEB
9SX 8000/11000 RT6U	-	-	EXT68605WEB	INT002WEB
9SX Power Module				
9SX 8000/11000 Power Module	-	-	EXT68605WEB	INT002WEB
9SX EBM				
9SX EBM 36/48/72/96V Rack Tower	-	-	EXT68601WEB	-
9SX EBM 180V	-	-	EXT68602WEB	-
9SX EBM 240V Rack/Tower	-	-	EXT68603WEB	-
9SX Marine				
9SX Marine 1000	-	-	EXT68602WEB	-
9SX Marine 3000	-	-	EXT68604WEB	-
9PX				
9PX 1000/1500	-	EB019WEB	EXT68602WEB	-
9PX 2200 RT2U/RT2U Netpack	-	EB015WEB	EXT68603WEB	INT001WEB
9PX 2200 RT3U/RT3U Hotswap	-	EB016WEB	EXT68603WEB	INT001WEB
9PX 3000 RT2U/RT2U Netpack	-	EB017WEB	EXT68603WEB	INT001WEB
9PX 3000 RT3U/RT3U Hotswap	-	EB018WEB	EXT68603WEB	INT001WEB
9PX 5000 HotSwap/RT3U Netpack	-	EB006WEB	EXT68604WEB	INT001WEB
9PX 6000 HotSwap/RT3U Netpack	-	EB006WEB	EXT68604WEB	INT001WEB
9PX 8000 HotSwap/RT6U Netpack	-	-	EXT68605WEB	INT002WEB
9PX 11000 HotSwap/RT6U Netpack	-	-	EXT68605WEB	INT002WEB
9PX 3:1				
9PX 6/8/11 kVA 3:1 HotSwap/ RT6U Netpack	-	-	EXT68605WEB	INT002WEB
9PX Power Module				
9PX 8/11 kVA Power Module	-	-	EXT68605WEB	INT002WEB
9PX 6/8/11 kVA 3:1 Power Module	-	-	EXT68605WEB	INT002WEB
9PX Redundant				
9PX 10/12 kVA	-	-	EXT68604WEB (Qty : 2)	INT002WEB
9PX 16/22 kVA	-	-	EXT68605WEB (Qty : 2)	INT003WEB

Services for running UPS/ePDU (Electronic format)

Current Products	Battery +	Easy Battery+	Extend	Intervention
9PX Modular Easy				
9PX ModularEasy 6000	-	-	EXT68602WEB	-
9PX Modular Easy 11000	-	-	EXT68603WEB	-
9PX EBM				
9PX EBM 48/72 V	-	-	EXT68601WEB	-
9PX EBM 180 V	-	-	EXT68602WEB	-
9PX EBM 240 V	-	-	EXT68603WEB	-
9PX Marine				
9PX 1500 Marine	-	EB019WEB	EXT68603WEB	-
9PX 3000 Marine	-	EB018WEB	EXT68604WEB	INT001WEB
9E				
9E 6/10/10 XL kVA	-	-	-	INT001WEB
9E 15/20/20 XL kVA	-	-	-	INT002WEB
9155				
9155 8/10 kVA/12/15 kVA	-	-	-	INT002WEB
9155 20/30 kVA	-	-	-	INT003WEB
Blade UPS				
BladeUPS 24 KW	-	-	-	INT004WEB
Blade UPS 36 KW	-	-	-	INT005WEB
Blade UPS 48 KW	-	-	-	INT006WEB
Blade UPS 60 KW/60 KW N+1	-	-	-	INT007WEB
93 PS				
93 PS 8/10/15/20 KVA	-	-	-	INT002WEB
93 PS (8+8)/(10+10)/(15+15)/ (20+20)kVA/30/40 kVA	-	-	-	INT003WEB
93 PM				
93 PM 30/40 KVA	-	-	-	INT004WEB
93 PM 50/60/80 KVA	-	-	-	INT005WEB
93 PM 100/120 KVA	-	-	-	INT006WEB
93 PM 150/160/200 KVA	-	-	-	INT007WEB
93E				
93E 15/20 KVA	-	-	-	INT002WEB
93E 30/40/60 KVA	-	-	-	INT003WEB
93E 80/100 KVA	-	-	-	INT004WEB
93E 120 KVA	-	-	-	INT005WEB
93E 160/200 KVA	-	-	-	INT007WEB
Power Distribution, Power management and accessories				
ePDU G3				
ePDU G3 Basic (BA)	-	-	EXT68600WEB	-
ePDU G3 Metered Input (MI)	-	-	EXT68601WEB	-
ePDU G3 Metered Outlet (MO), Switched (SW), Managed (MA)	-	-	EXT68602WEB	-
FlexPDU & HotSwapMBP				
FlexPDU & HotSwapMBP	-	-	EXT68600WEB	-
ATS				
ATS 16 / ATS 16N	-	-	EXT68600WEB	-
ATS 30A Netpack	-	-	EXT68602WEB	-

Legacy products	Battery +	Easy Battery+	Extend	Intervention
Off-Line				
Pulsar Ellipse ASR				
Ellipse ASR 375/600/750	B68765WEB	-	EXT68600WEB	-
Ellipse ASR 450	B68750WEB	-	EXT68600WEB	-
Ellipse ASR 1000	B68766WEB	-	EXT68600WEB	-
Ellipse ASR 1500	B68767WEB	-	EXT68600WEB	-
Line-Interactive				
Pulsar Ellipse MAX				
Ellipse MAX 600	B68765WEB	-	EXT68600WEB	-
Ellipse MAX 850/1100/1500	B68766WEB	-	EXT68600WEB	-
5130				
5130 1250/1750 VA	B68768WEB	EB004WEB	EXT68601WEB	-
5130 2500 RT2U/3000 RT2U	B68769WEB	EB001WEB	EXT68602WEB	-
5130 3000 RT3U	B68769WEB	EB002WEB	EXT68602WEB	-
5130 EBM 1250/1750 RT 2U	B68780WEB	-	EXT68601WEB	-
5130 EBM 3000 RT2U RT3U	B68781WEB	-	EXT68601WEB	-

Legacy products	Battery +	Easy Battery+	Extend	Intervention
Evolution				
Evolution 650	B68765WEB	-	EXT68600WEB	-
Evolution 650 Rack	B68771WEB	-	EXT68600WEB	-
Evolution 850/1150	B68766WEB	-	EXT68600WEB	-
Evolution 850 Rack	B68770WEB	-	EXT68600WEB	-
Evolution 1150 Rack	B68772WEB	-	EXT68600WEB	-
Evolution 1550	B68767WEB	-	EXT68601WEB	-
Evolution 1550 Rack	B68773WEB	-	EXT68601WEB	-
Evolution 2000	B68768WEB	-	EXT68601WEB	-
Evolution EXB 2200/3000	B68781WEB	-	EXT68601WEB	-
Evolution S				
Evolution S 1250/1750	B68768WEB	EB004WEB	EXT68601WEB	-
Evolution S 2500/3000 2U	B68769WEB	EB001WEB	EXT68602WEB	-
Evolution S 3000 3U	B68769WEB	EB002WEB	EXT68602WEB	-
Evolution S EXB 1250/1750	B68780WEB	-	EXT68601WEB	-
Evolution S EXB 2500/3000	B68781WEB	-	EXT68601WEB	-
On-Line Double Conversion				
Eaton EX				
EX 700	B68766WEB	-	EXT68602WEB	-
EX 1000/1500	B68767WEB	EB013WEB	EXT68602WEB	-
EBM 2200/3000	B68781WEB	-	EXT68601WEB	-
Eaton EX/ Pulsar M				
2200 2U	B68769WEB	EB001WEB	EXT68603WEB	INT001WEB
2200 3U	B68769WEB	EB002WEB	EXT68603WEB	INT001WEB
3000 2U	B68769WEB	EB001WEB	EXT68603WEB	INT001WEB
3000 3U	B68769WEB	EB002WEB	EXT68603WEB	INT001WEB
EBM 2200/3000	B68781WEB	-	EXT68601WEB	-
Eaton EX Marine				
EX Marine 1500	B68767WEB	EB013WEB	-	-
EX Marine 2200/3000	B68769WEB	EB002WEB	-	-
9130				
9130 700 VA	B68766WEB	EB024WEB	EXT68602WEB	-
9130 1000 VA	B68767WEB	EB025WEB	EXT68602WEB	-
9130 1000 RM	B68767WEB	EB027WEB	EXT68602WEB	-
9130 1500 VA	B68768WEB	EB026WEB	EXT68602WEB	-
9130 1500 RM	B68768WEB	EB014WEB	EXT68602WEB	-
9130 2000 VA/3000VA	B68780WEB	EB005WEB	EXT68603WEB	INT001WEB
9130 2000 RM/3000 RM	B68769WEB	EB003WEB	EXT68603WEB	
9130 5000/6000	-	-	EXT68604WEB	INT001WEB
9130 EBM 1000/1000 RM	B68769WEB	-	EXT68601WEB	-
9130 EBM 1500/1500 RM	B68780WEB	-	EXT68601WEB	-
9130 EBM 2000	B68786WEB	-	-	-
9130 EBM 2000 RM	B68781WEB	-	-	-
9130 EBM 3000	B68786WEB	-	EXT68601WEB	-
9130 EBM 3000 RM	B68781WEB	-	EXT68601WEB	-
9130 EBM 6000	-	-	EXT68602WEB	-
9130 Marine				
9130 Marine 1000	B68767WEB	EB025WEB	EXT68602WEB	-
9130 Marine 2000/3000	B68780WEB	EB005WEB	EXT68603WEB	-
Pulsar MX				
Pulsar MX 4/5 KVA	-	-	EXT68604WEB	INT001WEB
Pulsar MX Frame 15/20 KVA	-	-	-	INT002WEB
Pulsar MX EXB, MX ModularEasy	-	-	EXT68602WEB	-
EX RT				
EX RT 5/7/11kVA 1:1 and 3:1	-	-	EXT68605WEB	INT002WEB
9135				
9135 5000VA/6000VA	-	-	EXT68604WEB	INT001WEB
9135 EBM 5000VA/6000VA	-	-	EXT68602WEB	-
9140				
9140 7500 VA/10000 VA	-	-	EXT68605WEB	INT002WEB
9140 EBM (7500 - 10000)	-	-	EXT68603WEB	-
9355				
9355 8/10/12/15 kVA	-	-	-	INT002WEB
9355 20/30/40 kVA	-	-	-	INT003WEB
Power Distribution, Power management and accessories				
ePDU G2				
Basic/Monitored/Metered Input	-	-	EXT68600WEB	-
Advanced Monitored/Switched/ Managed	-	-	EXT68601WEB	-
STS				
STS16	-	-	EXT68600WEB	-

Extended Warranties for new UPS/ePDU (Physical format)

Current products	Warranty+1	Warranty+3	Warranty Advance
Off-Line			
Protection Station			
500/650/800	W1001	W3001	-
3S			
3S 550/700	W1001	W3001	-
Ellipse ECO			
Ellipse ECO 500/650/800	W1001	W3001	-
Ellipse ECO 1200/1600	W1002	W3002	-
Line-Interactive			
5E			
5E 500/650/850/1100/1500	W1001	-	-
5E 2000	W1002	-	-
5S			
5S 550/700	W1001	W3001	-
5S 1000/1500	W1002	W3002	-
Ellipse PRO			
Ellipse PRO 650/850/1200	W1002	W3002	-
Ellipse PRO 1600	W1003	W3003	-
5SC			
5SC 500/750	W1002	W3002	-
5SC 1000/1500/1000 Rack	W1003	W3003	-
5SC 1500 Rack	W1004	W3004	-
5SC 2200 RT	W1004	W3004	-
5SC 3000 RT	W1005	W3005	-
5SC 750 120V	W1002	W3002	-
5P			
5P 650	W1002	W3002	-
5P 650 Rack 1U	W1003	W3003	-
5P 850	W1003	W3003	-
5P 850 Rack 1U	W1003	W3003	-
5P 1150	W1003	W3003	-
5P 1150 Rack 1U	W1004	W3004	-
5P 1550	W1004	W3004	-
5P 1550 Rack 1U	W1004	W3004	-
5PX			
5PX 1500	W1004	W3004	-
5PX 2200 RT2U	W1004	W3004	
5PX 2200 RT2U Netpack	W1005	W3005	
5PX 3000	W1005	W3005	-
5PX EBM 48V RT2U	W1003	W3003	
5PX EBM 72V	W1004	W3004	-
5PX 1500 RT2U 120V	W1004	W3004	-
On-Line Double Conversion			
9SX			
9SX 700	W1003	W3003	-
9SX 1000/1500/2000/ 1000 Rack/1500 Rack	W1004	W3004	-
9SX 3000/2000 Rack/ 3000 Rack	W1005	W3005	-
9SX 5000/6000	W1006	W3006	WAD001
9SX 8000	W1007	W3007	WAD001
9SX 11000	W1008	W3008	WAD001
9SX 5000 RT3U	W1006	W3006	WAD001
9SX 6000 RT3U	W1007	W3007	WAD001
9SX 8000/11000 RT6U	W1008	W3008	WAD001
9SX Power Module			
9SX 8000 Power Module	W1006	W3006	WAD001
9SX 11000 Power Module	W1007	W3007	WAD001
9SX EBM			
9SX EBM 36/48V Rack Tower	W1003	W3003	-
9SX EBM 96/72/180V	W1004	W3004	-
9SX EBM 240V	W1004	W3004	-
9SX EBM 240V Tower	W1005	W3005	-
9SX Marine			
9SX Marine 1000	W1004	W3004	-
9SX Marine 3000	W1006	W3006	-
9PX			
9PX 1000	W1004	W3004	-
9PX 1500/2200	W1005	W3005	-
9PX 3000	W1006	W3006	-
9PX 5000 Hotswap/RT3U Netpack	W1007	W3007	WAD001
9PX 6000 Hotswap/RT3U Netpack	W1007	W3007	WAD001
9PX 8/11kVA Hotswap/ RT6U Hotswap Net pack	W1008	W3008	WAD001
9PX 3:1			
9PX 6/8/11kVA 3:1 Hotswap/ RT6U Hotswap Net pack	W1008	W3008	WAD001
9PX Power Module			
9PX 8000i Power Module	W1006	W3006	WAD001
9PX 11000i Power Module	W1007	W3007	WAD001
9PX 6000i 3:1 Power Module	W1006	W3006	WAD001
9PX 8000i 3:1 Power Module	W1007	W3007	WAD001
9PX 11000i 3:1 Power Module	W1008	W3008	WAD001

Current products	Warranty+1	Warranty+3	Warranty Advance
9PX Redundant			
9PX 10/12 kVA	W1008 (Qty : 2)	W3008 (Qty : 2)	WAD001 (Qty : 2)
9PX 16/22 kVA	W1008 (Qty : 2)	W3008 (Qty : 2)	WAD003 (Qty : 2)
9PX Modular Easy			
9PX ModularEasy 6000i	W1004	W3004	-
9PX ModularEasy 11000i	W1005	W3005	-
9PX EBM			
9PX EBM 48/72/180V	W1004	W3004	-
9PX EBM 240V	W1005	W3005	-
9PX Low Voltage			
9PX 1500 RT 120V	W1005	W3005	-
9PX 2000/3000 RT 120V	W1006	W3006	-
9PX Marine			
9PX 1500 Marine	W1006	W3006	-
9PX 3000 Marine	W1007	W3007	-
9PX Marine Filter	W1004	W3004	-
9E			
9E 6000/10000 XL	W1005	-	-
9E 10000	W1006	-	-
9E 15000/20000 XL	W1007	-	WAD001
9E 20000	W1008	-	WAD001
9155			
9155 8/10 kVA	-	-	WAD001
9155 12/15 kVA	-	-	WAD002
9155 20/30 kVA	-	-	WAD003
Blade UPS			
Blade UPS 24 KW	-	-	WAD004
Blade UPS 36 KW	-	-	WAD005
Blade UPS 48 KW	-	-	WAD006
Blade UPS 60 KW	-	-	WAD007
Blade UPS 60 KW N+1	-	-	WAD008
93 PM			
93 PM 30/40 kVA	-	-	WAD004
93 PM 50/60/80 kVA	-	-	WAD005
93 PM 100/120 kVA	-	-	WAD006
93 PM 150/160 kVA	-	-	WAD007
93 PM 200 kVA	-	-	WAD008
93 E			
93 E 15/20 kVA	-	-	WAD001
93 E 30 kVA	-	-	WAD002
93 E 40/60/80 kVA	-	-	WAD003
93 E 100 kVA	-	-	WAD004
93 E 120 kVA	-	-	WAD005
93 E 160 kVA	-	-	WAD006
93 E 200 kVA	-	-	WAD007
93 PS			
93 PS 8/10 kVA	-	-	WAD001
93 PS 15/20 kVA	-	-	WAD002
93 PS (8+8)/(10+10)/30/40 kVA	-	-	WAD003
93 PS (15+15)/(20+20) kVA	-	-	WAD004
Power Distribution, Power management and accessories			
ePDU G3 Basic			
EBAB00/EBAB08/EBAB20	W1003	W3003	-
EBAB01/EBAB11/EBAB32/EBAH11	W1004	W3004	-
EBAB02	W1001	W3001	-
EBAB03/EBAB04/EBAB05/EBAB19/ EBAB21/EBAB22	W1002	W3002	-
ePDU G3 In-Line Metered			
EILB13/EILB14/EILB15/EILB24/EILB25	W1003	W3003	-
EILB26	W1004	W3004	-
ePDU G3 Metered Input			
EMIB00/EMIB07/EMIB08/EMIB11/ EMIB12/EMIB20/EMIB32	W1004	W3004	-
EMIB03/EMIB04/EMIB05/EMIB06/ EMIB09/EMIB10/EMIB16/EMIB17/ EMIB18/EMIB22/EMIH02/EMIH06/ EMIH28	W1003	W3003	-
EMIB34	W1005	W3005	-
ePDU G3 Metered Outlet			
EMOB03/EMOB04/EMOB05/EMOB16/ EMOB17/EMOB18/EMOB20/EMOB22/ EMOB71/EMOH28/EMOH84	W1004	W3004	-
EMOB33	W1005	W3005	-
ePDU G3 Switched			
Switched (all ESWB & ESWH)	W1004	W3004	-
ePDU G3 Managed			
EMAB03/EMAB04/EMAB05/EMAB16/ EMAB17/EMAB18/EMAB22/ EMAH06/EMAH28	W1004	W3004	-
EMAB20/EMAB33/EMAB71	W1005	W3005	-
EMAB12	W1006	W3006	-
FlexPDU & HotSwapMBP			
Flex PDU 6/8/12	W1001	W3001	-

Extended Warranties for new UPS/ePDU (Physical format)

Current products	Warranty+1	Warranty+3	Warranty Advance
Hotswap MBP	W1002	W3002	-
Hotswap MBP 6000/11000	W1003	W3003	-
Hotswap MBP 11000 3:1	W1004	W3004	-
ATS			
ATS 16/ATS 16N/ATS 30N	W1004	W3004	-

Legacy products	Warranty+	Warranty+3	Warranty Advance
Line-Interactive			
5130			
5130 1250 RT 2U	W1003	W3003	-
5130 1750 RT 2U	W1004	W3004	-
5130 2500/3000 RT 2U/3000 RT 3U	W1005	W3005	-
5130 EBM 1250/1750 /3000	W1003	W3003	-
On-Line Double Conversion			
Eaton EX			
EX 700/1000	W1004	W3004	-
EX 1500	W1005	W3005	-
EX EXB 1000/1500	W1003	W3003	-
Eaton EX / Pulsar M			
EX / Pulsar M 2200 VA 2U/3U	W1005	W3005	-
EX / Pulsar M 3000 VA 2U/3U	W1006	W3006	-
EX /Pulsar M EBM 2200/3000VA	W1004	W3004	-

Legacy products	Warranty+	Warranty+3	Warranty Advance
Eaton EX Marine			
EX Marine 1500 RT2U/2200 RT	W1005	W3005	-
EX Marine 3000 RT	W1006	W3006	-
9130			
9130 700 VA	W1003	W3003	-
9130 1000 VA/1000 RM	W1004	W3004	-
9130 1500 VA/2000/1500 RM/ 2000 RM	W1005	W3005	-
9130 3000 VA/3000 RM	W1006	W3006	-
9130 5000/6000	W1007	W3007	WAD001
9130 EBM 1000 RM	W1002	W3002	-
9130 EBM 1000/1500/1500 RM/ 3000 RM	W1003	W3003	-
9130 EBM 3000	W1004	W3004	-
9130 EBM 6000	W1005	W3005	-
9130 1000 120V	W1004	W3004	-
9130 3000 120V	W1006	W3006	-
9130 Marine			
Eaton 9130 1000 Marine tower	W1004	W3004	-
Eaton 9130 2000/3000 Marine tower	W1005	W3005	-
9355			
9355 8/10 kVA	-	-	WAD001
9355 12/15 kVA	-	-	WAD002
9355 20/30/40 kVA	-	-	WAD003

Services for running UPS/ePDU (Physical format)

Current Products	Battery +	Easy Battery+	Extend	Intervention
Off-Line				
Protection Station				
Protection Station 500	68750	-	68600	-
Protection Station 650/800	68765	-	68600	-
3S				
3S 550	68750	-	68600	-
3S 700	68765	-	68600	-
Ellipse ECO				
Ellipse ECO 500	68750	-	68600	-
Ellipse ECO 650	68765	-	68600	-
Ellipse ECO 800	68765	-	68600	-
Ellipse ECO 1200	68766	-	68600	-
Ellipse ECO 1600	68766	-	68600	-
Line-Interactive				
5E				
5E 500/650/850/1100/1500/2000	-	-	68600	-
5S				
5S 550	68750	-	68600	-
5S 700	68765	-	68600	-
5S 1000/1500	68766	-	68600	-
Ellipse PRO				
Ellipse PRO 650	68765	-	68600	-
Ellipse PRO 850	68765	-	68600	-
Ellipse PRO 1200	68766	-	68600	-
Ellipse PRO 1600	68766	-	68600	
5SC				
5SC 500	68765	-	68600	-
5SC 750/1000	68766	EB007	68600	-
5SC 1000 Rack	-	EB020	68600	
5SC 1500	68767	-	68600	-
5SC 1500 Rack	-	EB021	68601	-
5SC 2200 RT	-	EB004	68601	-
5SC 3000 RT	-	EB001	68602	-
5P				
5P 650	68765	-	68600	-
5P 650 Rack 1U	68771	EB010	68600	-
5P 850/1150	68766	EB008	68600	-
5P 850 Rack 1U	68770	EB011	68600	-
5P 1150 Rack 1U	68772	EB011	68600	-
5P 1550	68767	EB009	68601	-
5P 1550 Rack 1U	68773	EB012	68601	-
5PX				
5PX 1500	68768	EB004	68601	-
5PX 2200	68768	EB004	68602	INT001
5PX 3000 2U	68769	EB001	68602	INT001
5PX 3000 3U	68769	EB002	68602	INT001

Current Products	Battery +	Easy Battery+	Extend	Intervention
5PX EBM 48V RT2U	68780	-	68601	
5PX EBM 72V RT3U/RT2U	68781	-	68601	
On-Line Double Conversion				
9SX				
9SX 700/1000/1500/ Rack	-	-	68602	-
9SX 2000	-	-	68603	INT001
9SX 2000 Rack	-	-	68603	-
9SX 3000	-	-	68604	INT001
9SX 3000 Rack	-	-	68604	-
9SX 5000/6000	-	-	68605	INT001
9SX 5000 RT3U/6000 RT3U	-	EB006	68604	INT001
9SX 8000/11000	-	-	68605	INT002
9SX 8000/11000 RT6U	-	-	68605	INT002
9SX Power Module				
9SX 8000/11000 Power Module	-	-	68605	INT002
9SX EBM				
9SX EBM 36/48/72/96V Rack Tower	-	-	68601	-
9SX EBM 180V	-	-	68602	-
9SX EBM 240V Rack/Tower	-	-	68603	-
9SX Marine				
9SX Marine 1000	-	-	68602	-
9SX Marine 3000	-	-	68604	-
9PX				
9PX 1000/1500	-	EB019	68602	-
9PX 2200 RT2U/RT2U Netpack	-	EB015	68603	INT001
9PX 2200 RT3U/RT3U Hotswap	-	EB016	68603	INT001
9PX 3000 RT2U/RT2U Netpack	-	EB017	68603	INT001
9PX 3000 RT3U/RT3U Hotswap	-	EB018	68603	INT001
9PX 5000 HotSwap/RT3U Netpack	-	EB006	68604	INT001
9PX 6000 HotSwap/RT3U Netpack	-	EB006	68604	INT001
9PX 8000 HotSwap/RT6U Netpack	-	-	68605	INT002
9PX 11000 HotSwap/RT6U Netpack	-	-	68605	INT002
9PX 3:1				
9PX 6/8/11 kVA 3:1 HotSwap/ RT6U Netpack	-	-	68605	INT002
9PX Power Module				
9PX 8/11 kVA Power Module	-	-	68605	INT002
9PX 6/8/11 kVA 3:1 Power Module	-	-	68605	INT002
9PX Redundant				
9PX 10/12 kVA	-	-	68604 (Qty : 2)	INT002
9PX 16/22 kVA	-	-	68605 (Qty : 2)	INT003
9PX Modular Easy				
9PX ModularEasy 6000	-	-	68602	-
9PX Modular Easy 11000	-	-	68603	-
9PX EBM				
9PX EBM 48/72 V	-	-	68601	-

Services for running UPS/ePDU (Physical format)

Current Products	Battery +	Easy Battery+	Extend	Intervention
9PX EBM 180 V	-	-	68602	-
9PX EBM 240 V	-	-	68603	-
9PX Marine				
9PX 1500 Marine	-	EB019	68603	-
9PX 3000 Marine	-	EB018	68604	INT001
9E				
9E 6/10/10 XL kVA	-	-	-	INT001
9E 15/20/20 XL kVA	-	-	-	INT002
9155				
9155 8/10 kVA/12/15 kVA	-	-	-	INT002
9155 20/30 kVA	-	-	-	INT003
Blade UPS				
BladeUPS 24 KW	-	-	-	INT004
Blade UPS 36 KW	-	-	-	INT005
Blade UPS 48 KW	-	-	-	INT006
Blade UPS 60 KW/60 KW N+1	-	-	-	INT007
93 PS				
93 PS 8/10/15/20 KVA	-	-	-	INT002
93 PS (8+8)/(10+10)/(15+15)/ (20+20)kVA/30/40 kVA	-	-	-	INT003
93 PM				
93 PM 30/40 KVA	-	-	-	INT004
93 PM 50/60/80 KVA	-	-	-	INT005
93 PM 100/120 KVA	-	-	-	INT006
93 PM 150/160/200 KVA	-	-	-	INT007
93E				
93E 15/20 KVA	-	-	-	INT002
93E 30/40/60 KVA	-	-	-	INT003
93E 80/100 KVA	-	-	-	INT004
93E 120 KVA	-	-	-	INT005
93E 160/200 KVA	-	-	-	INT007
Power Distribution, Power management and accessories				
ePDU G3				
ePDU G3 Basic (BA)	-	-	68600	-
ePDU G3 Metered Input (MI)	-	-	68601	-
ePDU G3 Metered Outlet (MO), Switched (SW), Managed (MA)	-	-	68602	-
FlexPDU & HotSwapMBP				
FlexPDU & HotSwapMBP	-	-	68600	-
ATS				
ATS 16 / ATS 16N	-	-	68600	-
ATS 30A Netpack	-	-	68602	-

Legacy products	Battery +	Easy Battery+	Extend	Intervention
Off-Line				
Pulsar Ellipse ASR				
Ellipse ASR 375/600/750	68765	-	68600	-
Ellipse ASR 450	68750	-	68600	-
Ellipse ASR 1000	68766	-	68600	-
Ellipse ASR 1500	68767	-	68600	-
Line-Interactive				
Pulsar Ellipse MAX				
Ellipse MAX 600	68765	-	68600	-
Ellipse MAX 850/1100/1500	68766	-	68600	-
5130				
5130 1250/1750 VA	68768	EB004	68601	-
5130 2500 RT2U/3000 RT2U	68769	EB001	68602	-
5130 3000 RT3U	68769	EB002	68602	-
5130 EBM 1250/1750 RT 2U	68780	-	68601	-
5130 EBM 3000 RT2U RT3U	68781	-	68601	-

Legacy products	Battery +	Easy Battery+	Extend	Intervention
Evolution				
Evolution 650	68765	-	68600	-
Evolution 650 Rack	68771	-	68600	-
Evolution 850/1150	68766	-	68600	-
Evolution 850 Rack	68770	-	68600	-
Evolution 1150 Rack	68772	-	68600	-
Evolution 1550	68767	-	68601	-
Evolution 1550 Rack	68773	-	68601	-
Evolution 2000	68768	-	68601	-
Evolution EXB 2200/3000	68781	-	68601	-
Evolution S				
Evolution S 1250/1750	68768	EB004	68601	-
Evolution S 2500/3000 2U	68769	EB001	68602	-
Evolution S 3000 3U	68769	EB002	68602	-
Evolution S EXB 1250/1750	68780	-	68601	-
Evolution S EXB 2500/3000	68781	-	68601	-
On-Line Double Conversion				
Eaton EX				
EX 700	68766	-	68602	-
EX 1000/1500	68767	EB013	68602	-
EBM 2200/3000	68781	-	68601	-
Eaton EX/ Pulsar M				
2200 2U	68769	EB001	68603	INT001
2200 3U	68769	EB002	68603	INT001
3000 2U	68769	EB001	68603	INT001
3000 3U	68769	EB002	68603	INT001
EBM 2200/3000	68781	-	68601	-
Eaton EX Marine				
EX Marine 1500	68767	EB013	-	-
EX Marine 2200/3000	68769	EB002	-	-
9130				
9130 700 VA	68766	EB024	68602	-
9130 1000 VA	68767	EB025	68602	-
9130 1000 RM	68767	EB027	68602	-
9130 1500 VA	68768	EB026	68602	-
9130 1500 RM	68768	EB014	68602	-
9130 2000 VA/3000VA	68780	EB005	68603	INT001
9130 2000 RM/3000 RM	68769	EB003	68603	
9130 5000/6000	-	-	68604	INT001
9130 EBM 1000/1000 RM	68769	-	68601	-
9130 EBM 1500/1500 RM	68780	-	68601	-
9130 EBM 2000	68786	-	-	-
9130 EBM 2000 RM	68781	-	-	-
9130 EBM 3000	68786	-	68601	-
9130 EBM 3000 RM	68781	-	68601	-
9130 EBM 6000	-	-	68602	-
9130 Marine				
9130 Marine 1000	68767	EB025	68602	-
9130 Marine 2000/3000	68780	EB005	68603	-
Pulsar MX				
Pulsar MX 4/5 KVA	-	-	68604	INT001
Pulsar MX Frame 15/20 KVA	-	-	-	INT002
Pulsar MX EXB, MX ModularEasy	-	-	68602	-
EX RT				
EX RT 5/7/11kVA 1:1 and 3:1	-	-	68605	INT002
9135				
9135 5000VA/6000VA	-	-	68604	INT001
9135 EBM 5000VA/6000VA	-	-	68602	-
9140				
9140 7500 VA/10000 VA	-	-	68605	INT002
9140 EBM (7500 - 10000)	-	-	68603	-
9355				
9355 8/10/12/15 kVA	-	-	-	INT002
9355 20/30/40 kVA	-	-	-	INT003
Power Distribution, Power management and accessories				
ePDU G2				
Basic/Monitored/Metered Input	-	-	68600	-
Advanced Monitored/Switched/ Managed	-	-	68601	-
STS				
STS16	-	-	68600	-

Green by design

Eaton is constantly working with customers to develop solutions that drive sustainable growth around the globe. Our UPS solutions strive for unparalleled energy efficiency, efficient resource use, maximimum use of recyclable materials and the reduction of emissions throughout the entire life of the product, from cradle to grave.

Our engineers are constantly developing smarter ways to deliver ecological and economic benefits. This includes the development of energy efficient and environmentally friendly technologies.

Design

Taking account of the environment is a part of the design process at Eaton. Four characteristics guide the design team during their work: energy efficiency, resource efficiency, recycling and compliance with regulations.

The Life Cycle Assessment (LCA) process is used to gather information about the potential environmental impact of a product.

✉ LCA@Eaton.eu

Eaton is constantly monitoring the use of hazardous substances and material its design and manufacturing processes. Our products do not contain **REACH** SVHCs (Substances of Very High Concern) and Eaton is seeking to comply with the **RoHS Directive** in advance of it becoming a legal requirement to do so.

Manufacturing

Eaton is focused on building sustainable operations and managing Environment, Safety and Health (EHS) through standardisation. Our global Managing Environment, Safety and Health (MESH) programme is a unified system that consolidates existing programmes (ISO 14001, OHSAS 18001, OSHA VPP) into a single integrated management system.
All EMEA manufacturing locations are ISO14001 certified.

Use Phase

Green technologies

Energy Saver System (ESS)	Enables extremely high energy efficiency and reliability under normal operating conditions	Eaton 93PM and Power Xpert 9395P UPSs
Easy Capacity Test (ECT) technology	Enables testing of entire power train under full load stress without the need for an external load	Eaton 9355, 93E, 93PM and Power Xpert 9395P UPSs
Hot Sync technology	Start from a single module and add power when required	BladeUPS, Eaton 9PX, 9155, 9355, 93E, 93PM and Power Xpert 9395P UPSs
Advanced Battery Management (ABM) technology	Increases the life of batteries by employing a three-stage charging technique	BladeUPS, Eaton 5P, 5PX, 5SC, 9130, 9SX, 9PX, 9155, 9355, 93E, 93PM and Power Xpert 9395P UPSs
Hot-Swappable batteries	Allows batteries to be replaced or removed one string at a time while the equipment is still running	BladeUPS, Eaton 5130, 5P, 5PX, EX, 9130, 9SX and 9PX UPSs
EcoControl technology	Automatically disables peripherals when the master drive is turned off	Eaton Protection Station, Ellipse ECO and Ellipse PRO
Variable Module Management System (VMMS)	Maximises efficiencies at lighter loads without compromising reliability.	Power Xpert 9395P UPSs

End of Life

Eaton takes into account the environmental effects of the packaging and the end-of-life processing of our products and to aid more responsible dismantling, end-of-life instructions are available for recyclers.

We are committed to adhering to the following legislation when applicable:

WEEE (Directive 2002/96/CE)
Waste Electrical and Electronic Equipment

Batteries (Directive 2006/66/CE)
Batteries and accumulators and waste batteries and accumulators

Packaging (Directive 2004/12/CE)
Packaging and packaging waste

To find out more about Green by design, please visit: **www.eaton.eu/green**

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 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 7.7 MW (400 V) systems
- Easy and modular parallel UPS system upgrade with additional capacity or redundancy
- Erases single point of failure, load sharing is not endangered by loss of communication

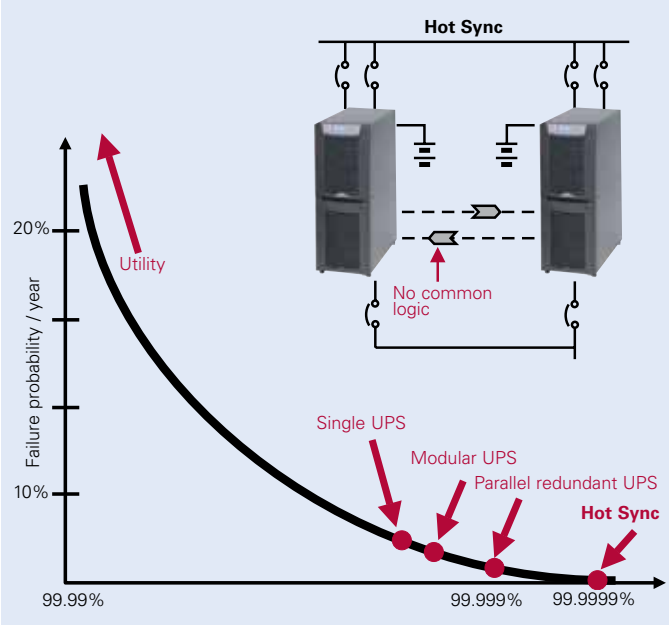


Figure 1. Power availability with various power supply configurations.

Hot Sync Technology

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 Vdiff and current Idiff between units exhibit a 90 degrees phase shift due to the inductive source impedance. The main voltage (V1 and V2) and the current between units Idiff 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'.

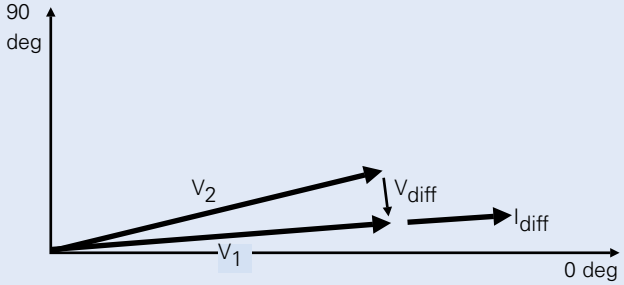


Figure 3. A phase displacement between parallel connected UPS voltages (V1 and V2) causes current flow between the units thus imbalances load share.

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.

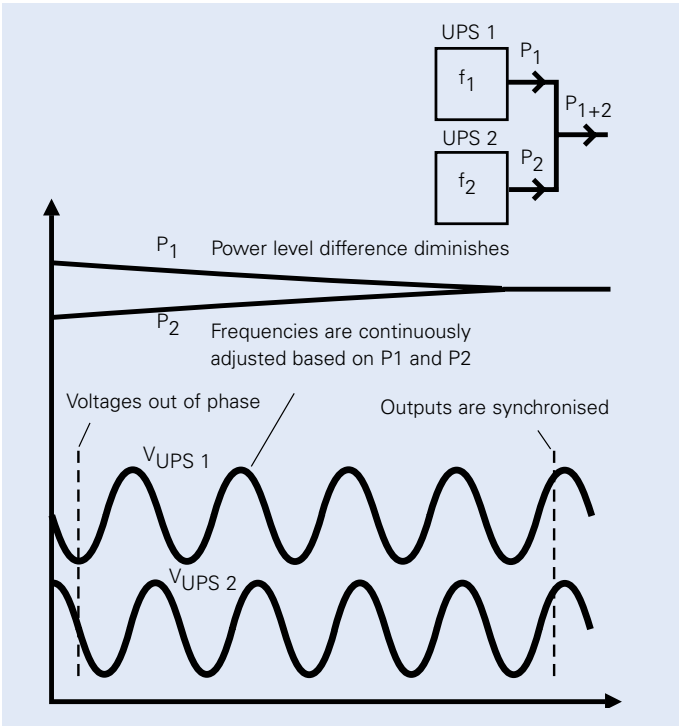


Figure 2. Well-balanced load share is achieved by adjusting output frequencies; thus the phase difference between parallel UPS output voltages is forced to zero.

$Fn = F_{n-1} - K1(Pn) - K2(Pn)$

Where:

Fn = frequency

F_{n-1} = previous frequency

Pn = power to load

K1 = frequency reduction factor

K2 = power change rate factor

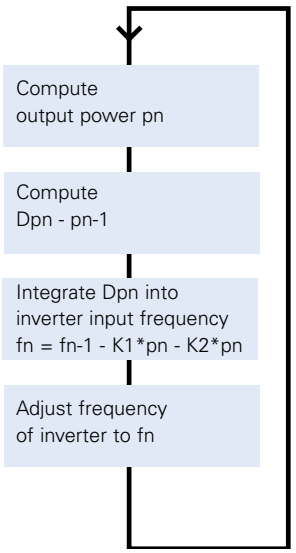


Figure 4. With HotSync algorithm, inverter phase angel is adjusted by output power and its change rate.

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

ABM technology significantly increases battery service life.

Superior battery management

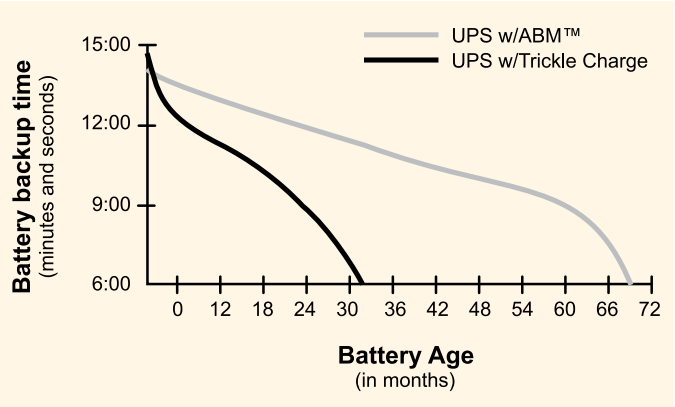
Battery service life is a major contributor to UPS reliability. Since batteries are electrochemical devices, their performance gradually decreases over time. Premature wear-out means higher costs in terms of replacement labour and shorter service cycle. A worn battery entails a risk of unexpected load 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 is now applied in UPSs up to 1100 kW.

User benefits

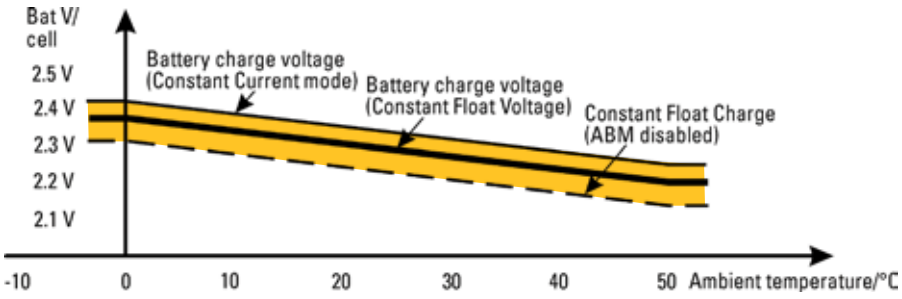
- Predictive and automatic diagnostics of battery health
- Significant extension of battery life compared to traditional charging method
- Optimisation of battery recharging time with dual mode charging method
- Automatic battery charge voltage compensation within 0 to +50°C temperature range



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.

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 sensor 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.

Energy Saver System
ESS

Energy Saver System

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

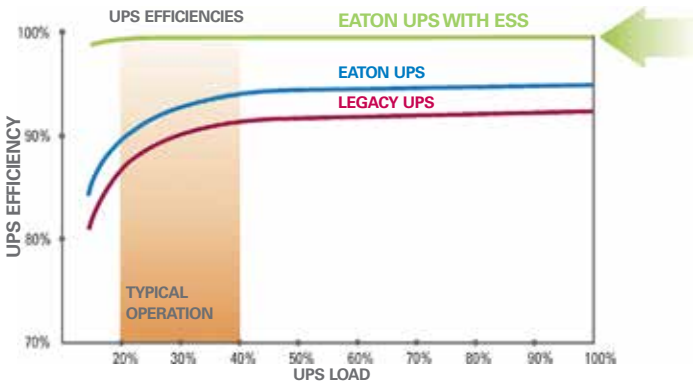
Maximised energy efficiency

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.

Applications

Energy Saver System is available for all Eaton 93PM and Power Xpert 9395P UPSs including:

- stand-alone single UPSs
- parallel systems
  All existing installations
  can be upgraded with the ESS capability.



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

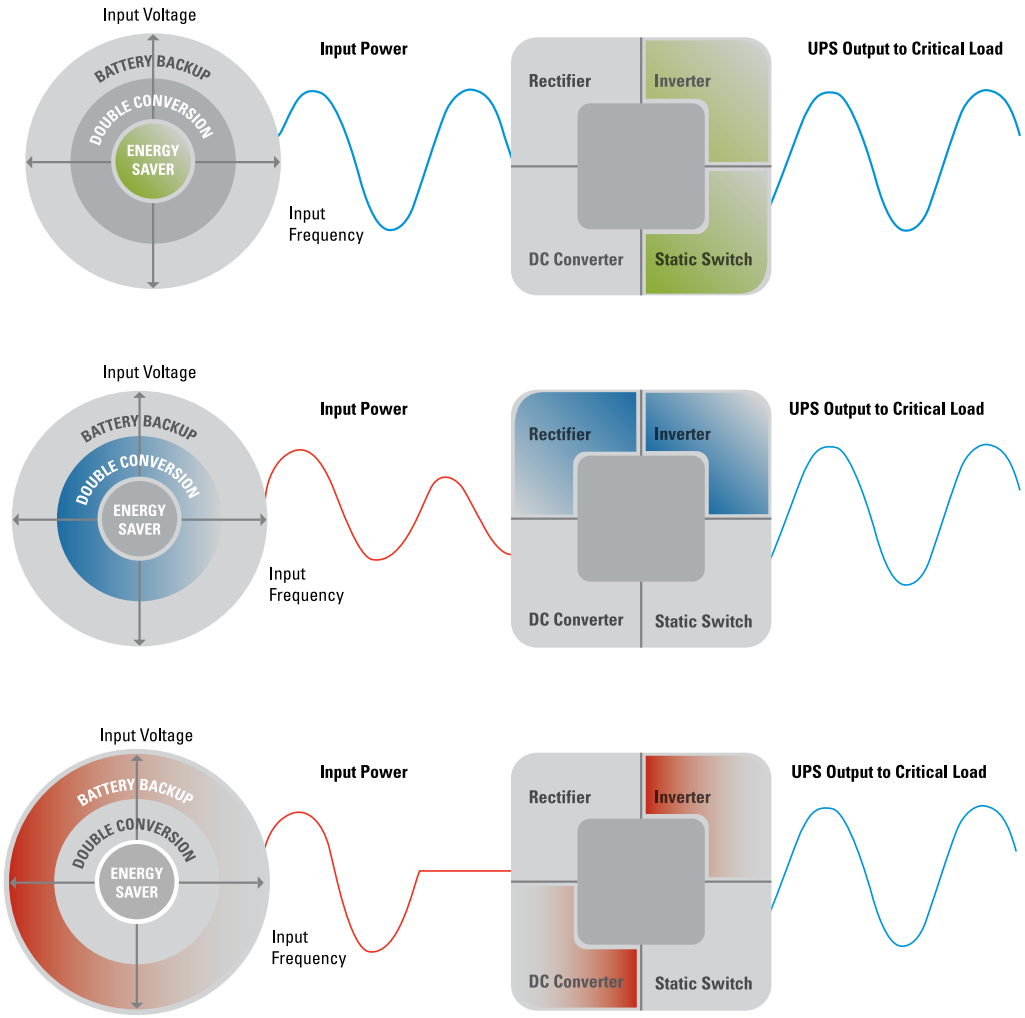
Eaton UPS with Energy Saver System features three configurable modes of operation:

- 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.

Availability

ESS is available for all 93PM and Power Xpert 9395P UPSs. Parallel UPS systems also support operation in ESS mode. Existing installations can be upgraded with ESS capability.



Active components engaged during Energy Saver System mode

Variable Module Management System

VMMS

Variable Module Management System (VMMS)

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. Variable Module Management System (VMMS) is one of these technologies.

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

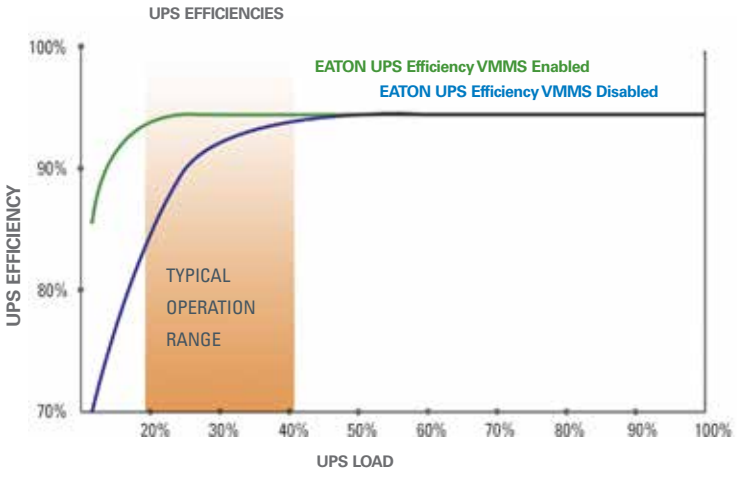
In some multi-UPS parallel systems used with lighter loads, the system maximises the load percentage of the UPSs by putting the UPSs that are not needed to power the load into idle mode. This results in partial energy savings and is limited to multi-UPS systems, with no efficiency improvements for -single-UPS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

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

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 technology maximises efficiencies at lighter loads

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 Power Xpert 9395P 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) Power Xpert 9395P systems:

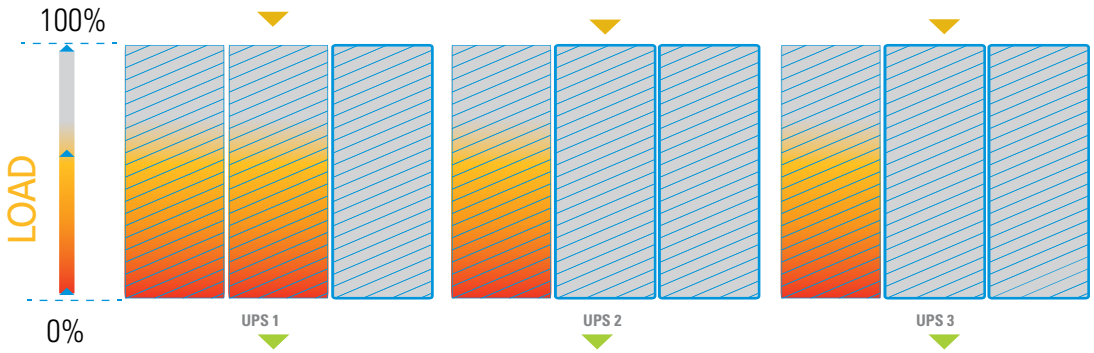
- Single 9395P units from 550 kVA to 1100 kVA
- All parallel 9395P systems

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)

VMMS Parallel Power Xpert 9395P – 900 kVA modular UPS and VMMS

Full system efficiency is automatically optimised according to the load level



Data centre with dual-corded servers, Power Xpert 9395P-900 kVA UPS on A and B side - 320 kVA load

UPS configuration	Without VMMS	With VMMS
Efficiency @ 320 kVA load	94.6%	96.1%
UPS energy savings	Used as reference for savings calculation	41 MWh / year
UPS energy savings	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

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.

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