



ИБП Eaton 91PS-XX(20)-YY - Eaton 91PS и 93PS - брошюра

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Product brochure
Eaton 91PS and Eaton 93PS UPS

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EATON

Powering Business Worldwide

Eaton 91PS and Eaton 93PS UPS

Lowest total cost of ownership and maximum availability – taking scalability, resiliency, safety, and efficiency to the next level.

The most advanced UPSs in their power range, the Eaton 91PS and 93PS are ideal for small data centers and other mission - critical applications where efficiency, reliability, safety and scalability are essential.

Future-ready

The rapid adoption of the cloud, constant evolution of IT technologies, increased focus on environmental footprint and sophistication of mission - critical applications are demanding even more efficient, resilient, scalable and safe power protection solutions.

The new levels of efficiency and scalability offered by the Eaton 91PS and 93PS minimize Total Cost of Ownership while the safety and resiliency, both in infrastructure and IT layers, maximize availability and ensure business continuity.

Eaton 91PS

(single/three phase in & single phase out)

POWER RATING

8-30 kW

Eaton 93PS

(three phase in & three phase out)

POWER RATING

8-40 kW



Eaton 91PS and 93PS suit every need

Eaton 91PS and 93PS are easy to deploy in various applications from Data Centers to infrastructure and rail to healthcare equipment and process automation.



Frame (maximum power)		10kW
Phases in/out	Eaton 91PS	1:1 / 3:1
	Eaton 93PS	3:3
Power range		8 – 10 kW
Runtime (internal batteries)		8 - 15 min
Number of power modules		Monolithic



Frame (maximum power)	Eaton 91PS	15 kW
	Eaton 93PS	20 kW
Phases in/out	Eaton 91PS	3:1
	Eaton 93PS	3:3
Power range	Eaton 91PS	8 – 15 kW
	Eaton 93PS	8 – 20 kW
Runtime (internal batteries)		5 – 37 min
Number of power modules		1



Frame (maximum power)	Eaton 91PS	30 kW
	Eaton 93PS	40 kW
Phases in/out	Eaton 91PS	3:1
	Eaton 93PS	3:3
Power range	Eaton 91PS	8 – 30 kW
	Eaton 93PS	8 – 40 kW
Runtime (internal batteries)		5 – 85 min
Number of power modules		1-2

Lowest Total Cost of Ownership

Eaton 91PS and 93PS cost you less to own because they are more efficient, thanks to a number of leading technologies.

Leading Efficiency Technologies resulting in ultimate savings

Double conversion efficiency

High online efficiency significantly lowers operation costs and provides savings in cooling. Replacing an older generation UPS with a Eaton 91PS/93PS will be paid back in 3 years.

96.2%



YEARS
PAYBACK
TIME

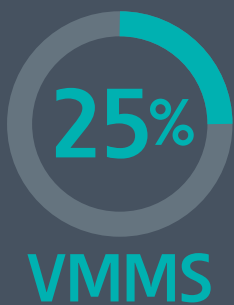
Energy Saver System

Energy Saver System (ESS) improves Eaton 91PS and 93PS efficiency levels to 99%. ESS is the most proven and reliable energy saving system in the market with many years of usage within a wide install base. Even when comparing to extremely high double conversion efficiency, ESS mode can further reduce the losses by 74% with a typical UPS load.

900000 kVA
of UPS CAPACITY IN ESS MODE
74% Less Losses

Optimized double conversion

Variable Module Management System (VMMS) helps to achieve high efficiency even when UPS load levels are low – typical for redundant UPS systems.



REDUCTION
IN OPERATION
EXPENSES

Availability

Whatever the changing conditions – and however quickly they change – the Eaton 91PS and 93PS UPSs are designed to maintain a steady, uninterrupted, clean power supply. This market-leading resiliency is the result of a number of advanced technologies built-in to the Eaton 91PS and 93PS.

RELIABILITY

What makes the difference when evaluating the reliability of UPS?



EXPERIENCE



PRODUCT DESIGN



MANUFACTURING
PROCESS



PRODUCT
FEATURES

Reliable load sharing

Hot Sync is a patented load-sharing technology for parallel operation of UPS inverters, without communication or load-share signals. Not relying on communication link or master-control topology, Eaton 91PS and 93PS UPSs provide the highest possible reliability by eliminating the single point of failure in a parallel operating UPS system.

Increased battery life

The Advanced Battery Management extends the life of valve-regulated lead-acid (VRLA) batteries, through an intelligent charging routine. This prevents unnecessary charging and significantly retards the battery wear rate. ABM technology is widely used and accepted technology with a 20-year proven track-record.

Electrical installation safety made easier

Designing safe electrical installations are made easy for the designers and end users of Eaton UPS. The important safety requirements are implemented into the UPS design as standard.

The installation fault current levels are determined by the size of incoming transformer. The UPS is validated for prospective short circuit current of I_{cc} 100kA, which is suitable for practically all installations. Eaton 91PS and 93PS UPSs come with an integrated Bussmann ultra-rapid fuse in its bypass line. Eaton UPSs are guaranteed to be safe and compatible with any installation fault current levels, no conditions apply.

The UPS safety standard (IEC/EN 62040 Part 1) also requires backfeed isolation device to be connected in the UPS static bypass path due to human safety under thyristor short circuit condition. Eaton UPS come with backfeed isolation contactor integrated internally in the unit. This also guarantees that a shorted thyristor will have no effect to the double conversion operation of the UPS, removing the single point of failure.

Eaton 91PS and Eaton 93PS user display

For user safety and convenience, the Eaton 91PS and 93PS display a range of colored LED indicators as operating status alerts. These are displayed both on the cabinet door of the UPS and on screen.

Normal operation



Bypass mode



Battery mode (blinking)



Alarm



More intelligence

Eaton 91PS and 93PS are uniquely intelligent UPSs, which are both virtualisation- and cloud-ready.

Single pane of glass

Utilising Eaton's Intelligent Power Software (Intelligent Power Manager – IPM – and Intelligent Power Protector – IPP) the Eaton 91PS and 93PS integrate with leading virtualisation and storage platforms, and allow users to view, monitor and administer physical and virtual servers, UPSs, PDUs and other power devices, from a single pane of glass.

Network- and power-related alerts will be provided through the virtualisation management application, and the Eaton 91PS and 93PS will take the resiliency of the system to the next level, by bridging the electrical and IT infrastructures.

IPM provides several options to ensure business continuity, e.g.:

- Load shedding: non-critical services can be suspended or gracefully shut down. By reducing the load to 50%, the UPS will have 150% more runtime on batteries
- Migration of critical applications to an unaffected host.

Technical specifications

General		
UPS output power rating	Eaton 91PS	8-30 kW
	Eaton 93PS	8-40 kW
Efficiency in double conversion mode		96 %
Efficiency in Energy Saver System (ESS) mode		99 %
Paralleling capability		up to 4 units
Audible noise	10 kW frame	< 54 dBA in double conversion
	15-40 kW frame	< 60 dBA in double conversion
Altitude (max)		1000 m without derating (max 2000m)

Input		
Input wiring	Eaton 91PS (1:1)	1 phase + N + PE
	Eaton 91PS (3:1) & 93PS (3:3)	3 phases + N + PE
Nominal voltage rating	Eaton 91PS (1:1)	220 V ; 230 V ; 240 V 50/60 Hz
	Eaton 91PS (3:1) & 93PS (3:3)	220/380 V; 230/400 V; 240/415 V 50/60 Hz
Input frequency range		40 to 72 Hz
Input power factor		0.99
Input iTHD	8-10 kW	< 5 %
	15-40 kW	< 4 %
Soft start capability		Yes
Internal backfeed protection		Yes

Output		
Output wiring	Eaton 91PS (1:1 & 3:1)	1 phase + N + PE
	Eaton 93PS (3:3)	3 phases + N + PE
Nominal voltage rating	Eaton 91PS (1:1 & 3:1)	220 V ; 230 V ; 240 V 50/60 Hz
	Eaton 93PS (3:3)	220/380 V; 230/400 V; 240/415 V
Load power factor range		0.8 lagging – 0.8 leading

Battery		
Battery type		VRLA
Charging mode		Advanced Battery Management (ABM) or Float
Temperature compensated charging		Option
Battery quantity	Internal	32 blocks, 192 cells per battery string
	External	28-40 blocks per string
Charge current limit	10 kW frame	Configurable, maximum 12.5 A
	15/20 kW frame	Configurable, maximum 18/25 A
	30/40 kW frame	Configurable, maximum 36/50 A
Battery start capability		Yes
Alternative backup power sources		Li-Ion batteries Supercapacitors Wet cell batteries NiCd batteries

Options and accessories	
Long life batteries	
External battery cabinets and supercapacitor cabinets	
External maintenance bypass switches	
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
Connectivity cards:	
	Web/SNMP
NETWORK-MS	Temperature, humidity and two status inputs through Environmental Monitoring Probe (option)
	Web/SNMP/Modbus RTU and TCP/BACnet IP
PXGMS	Temperature, humidity and two status inputs through Environmental Monitoring Probe (option)
INDRELAY-MS	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

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