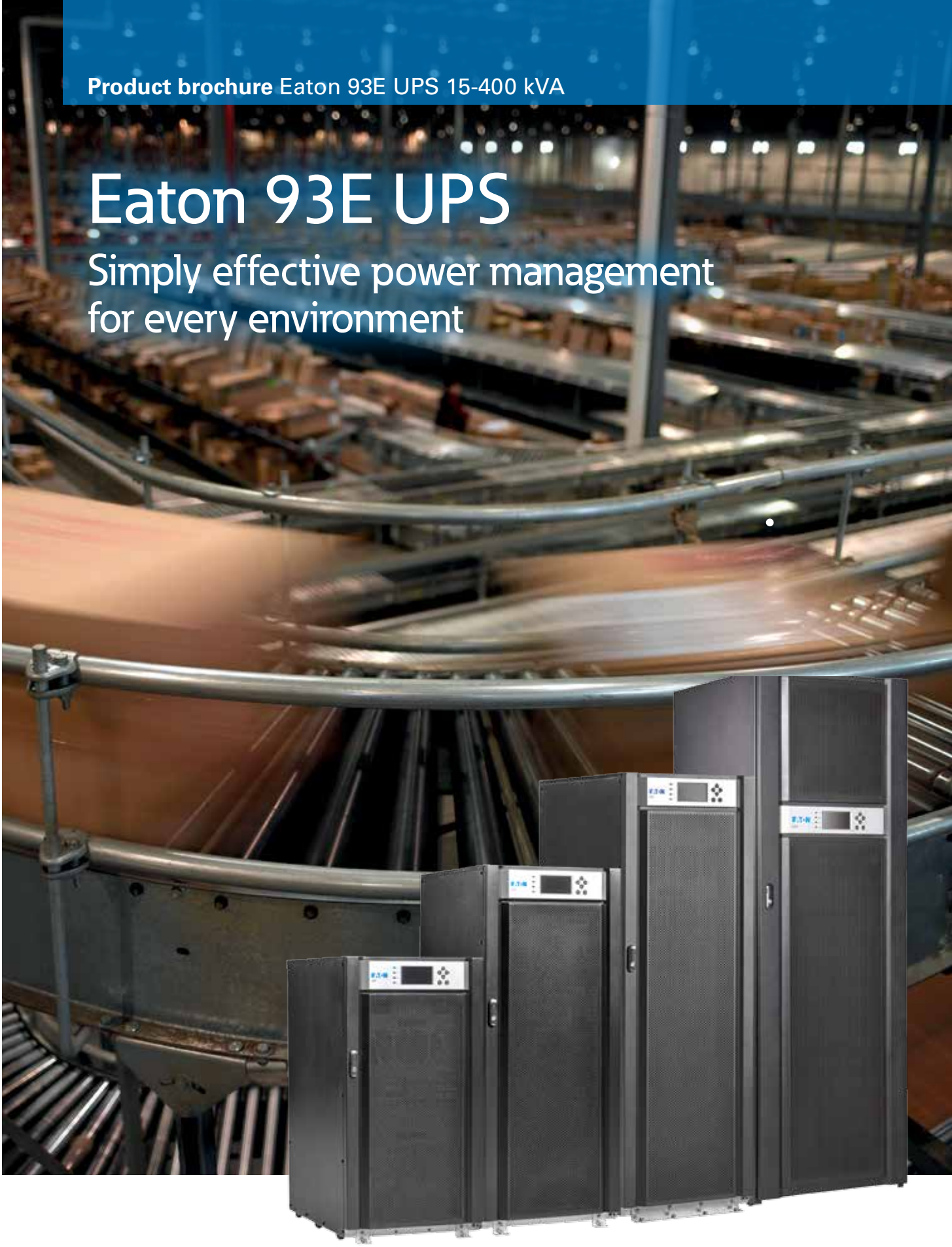
Product brochure Eaton 93E UPS 15-400 kVA

Eaton 93E UPS

Simply effective power management for every environment



Powering Business Worldwide

The Eaton 93E: simply effective

The Eaton 93E UPS delivers **simply effective** power protection for ever-expanding loads in all electrical and IT applications. Facilitating a lower total cost of ownership (TCO) through a combination of energy-efficiency, high reliability and a compact footprint the 93E is an ideal solution for commercial buildings and technical facilities, as well as small - to medium - sized data centres desiring highly reliable power protection.

93E 15-400 kVA

Energy-efficient design

With a transformer-free design and sophisticated sensing and control circuitry the 93E is capable of achieving up to a 98.5% efficiency rating, making it one of the most energy-efficient UPSs in its class - and it still provides maximum load protection. Unlike most high efficiency UPSs, the 93E:

- Provides surge suppression for the load
- Detects the location of faults (utility or load) and takes the appropriate action
- Switches to double-conversion operation in less than 4 ms

High system efficiency reduces utility cost, extends battery run times and ensures cooler operating conditions.

Real compatibility

Active power factor correction (PFC) provides 0.99 input power factor and <5% ITHD, thus eliminating interference with other critical equipment in the same network and enhancing compatibility with generators. The 93E is optimised for protecting modern 0.9 p.f. rated IT equipment without the need to oversize.

Applications

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

True reliability

Eaton's patented 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 between parallel UPSs, thus eliminating single point of failure.

Compact & serviceable design

Small footprint occupies minimal floor space:

- Over 20% smaller than similar competitive solutions
- 500 - 600 mm wide UPS cabinet enables seamless "in-row" integration with IT racks

The 93E is easily and quickly serviced to provide the highest level of availability with Mean Time to Repair (MTTR) up to <30 minutes.

Battery solution

Eaton 93E provides an option for internal batteries in the 15-40 kVA models, in addition to the possibility to connect external batteries for all models.

Back-feed protection device

The International standard and European Normative IEC 62040-1 states that a UPS device shall prevent all hazardous voltage and energy from being transferred to the UPS input terminals after the input power has been interrupted. This can only be achieved by means of either an internal or external back-feed protection device in the static bypass circuit of the UPS.

The 93E includes an internal back-feed protection device in all its models ensuring compliance and eliminating any unnecessary costs and effort installing an external device in an existing electrical installation.

User Interface

Large LCD graphically displays UPS status and offers easy access to measurements, controls and settings.

Connectivity

With Eaton® Mini-Slot connectivity cards, you can monitor, manage and remotely shutdown UPSs across the network.

- Network Card–MS Web/SNMP Card allows you to connect your 93E UPS directly to the Ethernet network and the Internet
- Network and MODBUS Card-MS provides remote monitoring of a UPS system through a Building Management System (BMS) or Industrial Automation System (IAS)
- Industrial Relay Card-MS provides the essential dry-contact interface between your Eaton UPS and any relay-connected computer as well as a variety of industrial applications

Software

Eaton's Intelligent Power® Software Suite incorporates two important applications for ensuring quality power and uptime:monitoring and management of power devices across the network combined with automatic, graceful shutdown when faced with an extended power outage.

- Monitor and manage multiple power devices across your network
- Extend the uptime of dual-powered servers with redundancy capabilities
- Enable server shutdown and live migration events

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

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

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

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

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

A world-class support structure

As an industry-leading UPS provider, at Eaton we're constantly working to ensure that our service standards meet your needs precisely. Our trained service team is on hand 24/7 to minimise risks by detecting and addressing problems before they happen. In Europe, Middle East and Africa region Eaton´s service network consists of more than 120 field engineers who receive comprehensive, up-to-date training on the latest products and technologies.

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

Eaton 93E UPS 15-400 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 100 kVA/90 kW 160 kVA/144 kW 300 kVA/270 kW	20 kVA/18 kW 40 kVA/36 kW 80 kVA/72 kW 120 kVA/108 kW 200 kVA/180 kW 400 kVA/360 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		
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 432 V - 480 V for 100-400 kVA with external batteries	
Charging method	ABM Cyclic Charging	
Charging current/Model	15 20 30 40 60 80 100 120 160 200 300 400 kVA	
Default	3.5 3.5 5.2 7 10.4 15.6 20 20 20 20 20 20 A	
Max*	5.3 5.3 8 10.6 16 24 40 40 80 80 120 160 A	

*May be limited by maximum UPS input current rating

General		
Efficiency	Up to 98% High-efficiency mode (15-80 kVA) Up to 98.5% High-efficiency mode (100-400 kVA) 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 1600 x 820 x 1880	15-20 kVA (with internal battery) 30 kVA (with internal battery) 40 kVA (with internal battery) 60-200 kVA 300/400 kVA
Cabinet rating	IP20 with standard washable dust filters	
Weights without internal battery	72 kg 88 kg 120 kg 202 kg 245 kg 283 kg 311 kg 457 kg 860 kg 970 kg	15/20 kVA 30 kVA 40 kVA 60 kVA 80 kVA 100 kVA 120 kVA 160/200 kVA 300 kVA 400 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 100-200 kVA ≤70 dBA at 1m typical 300-400 kVA ≤73 dBA at 1m typical
Altitude	<1000 m at +40 °C
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	
Internal manual bypass switch up to 120 kVA	
External maintenance bypass switch (80-160 kVA)	
MiniSlot connectivity (Web/SNMP, ModBus/Jbus, Relay)	
Environmental monitoring probe	

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

For more information visit: eaton.eu/93E

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