

# Energy Saver System



## Energy Advantage Architecture (EAA)

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

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

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

## Maximised energy efficiency

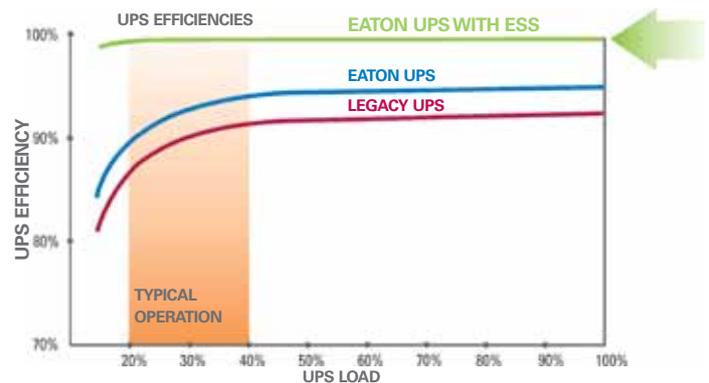
With **85 percent reduction in UPS energy losses**, ESS technology dramatically reduces energy consumption, environmental impact and power costs without compromising load protection. With these outstanding energy savings, it is possible to recover the entire cost of the UPS over a three to five year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

## Applications

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

- stand-alone single UPSs
- parallel systems

All existing installations can be upgraded with the ESS capability.



**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.



Powering Business Worldwide

## No compromise on reliability

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

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

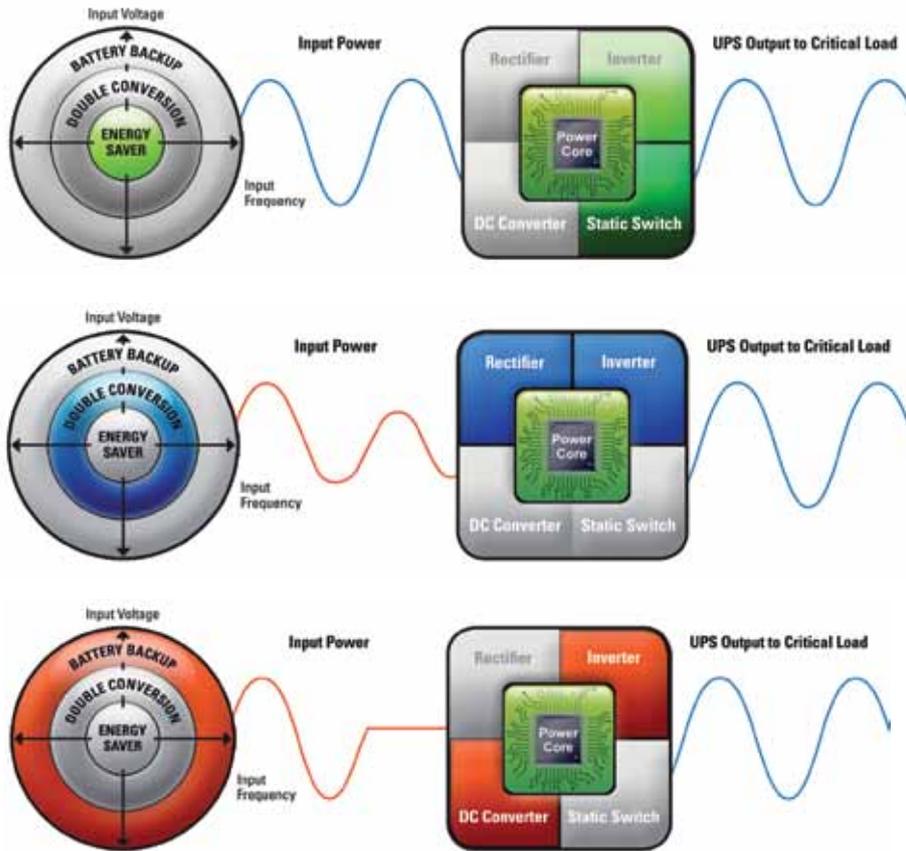
Proven Eaton technology ensures reliability and continuous load availability without compromising the protection of the supported equipment.

## Extensive configurability

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

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

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



Active components engaged during Energy Saver System mode

## Availability

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