ELTEK
A Delta Group Company

Converged Power Solutions

Data center power reinvented

always on anywhere anytime

With Eltek's Converged Power Solutions, the next generation power solution for data centers is here. It offers unmatched availability, scalability and compactness compared to traditional systems – in a simpler way, and at a lower total cost of ownership. It is designed to power your data centers into the future – and is available today.

Converged Power Solutions (CPS) offer a modular and flexible infrastructure to meet all data center power requirements within IT, telecom, cloud and banking sectors. It provides an unprecedented power availability for telecom, IT and cooling equipment in a very power dense solution.

CONVERGED POWER SOLUTIONS - FOR THE BACKBONE OF OUR DIGITAL WORLD

flexible

AC & DC power - combined

The CPS allows AC and DC feed from the same power system

Converged Power Solution - AC and DC output combined in a space-saving, efficient and scalable solution. Floor space needed for a converged power solution is up to 50% less than a traditional AC UPS based infrastructure.

Eltek's Converged Power Solution caters for all power needs in the data center. It combines the advantages of modern, modular power technology while meeting all AC and DC load requirements.

New level of availability

The Converged Power Solution (CPS) is modular. In the unlikely event of a module failing, it can be replaced in minutes without affecting any loads. The result is a very reliable system providing an unsurpassed availability of power.

Flexibility

The modular design of a CPS provides full flexibility and scalability to match current and future demand. You also have full flexibility when it comes to mixing VAC and VDC outputs. Depending on the requirement, the AC and DC parts of the system can be populated with the appropriate number of modules.

Lower total cost of ownership

The CPS is very compact compared to the traditional AC UPS configurations as it reduces the need for switch gear equipment. This saves capex and space, and also improves the reliability and serviceability of the solution. The CPS reduces requirements for civil works, project management, installation time and transportation – all contributing to reduced cost. High efficient conversion in combination with high quality functional design and engineering, ensures unparalleled energy efficiency across the entire power infrastructure.

The result is a significantly reduced total cost of ownership and a power system with an unmatched overall reliability.

Sustainability

The high efficiency and compact design also reduces the environmental impact and costs associated with consumption of energy and materials in connection with civil works, transportation and operation of buildings and infrastructure.
In addition, moving more plant and IT equipment over to VDC reduces the number of power conversions and thereby energy waste.

Future proof

The CPS deals with all the major VAC and VDC voltages and facilitates mixed environments. Regardless of where trends might go in the future, you can be sure that you are always on the right track.

- **It converges** the function of low voltage switchgear, switchboard, automatic transfer switches and power distribution and delivers all through one integrated system.
- **It is modular**, based on our High Efficiency power modules, and can be scaled from few kilowatts to many megawatts, scaled according to immediate business demand.
- **It has a future proof** design as it can evolve AC to DC applications according to product availability. It automatically adjusts power between equipment applications, and load balancing is inherent.
- **It interfaces** directly to generators and mains transformers. This eliminates a single point of failure, enables live gen-set testing and provides an unmatched power availability.

50%

Less space

>> AC and DC output

>> No transfer switch

Output up to 800kW

1 Original CPS

For convergence of IT and Telecom – providing AC and DC feed from one system, while making several other power components redundant.

2 Mini CPS

A downscaled CPS for End-of-Row or modular data centers. Providing convergence of AC and DC supply in a smaller package.

3 AC CPS

Converging power room components into a modular and scalable power solution for AC loads, adding capacity to tradional IT.

Watch the video
Learn how the Eltek CPS enables TIER4+ availability in a minimum of space.

1 Original CPS

The foundation in the Converged Power System is a 380Vdc system busbar and battery voltage, matching the new «high voltage DC» UPS standard for data center and ICT applications. In its basic configuration, the CPS is a pure 380Vdc rectifier system with batteries and DC distribution feeding power to the server rooms with a minimum of conduction and conversion losses.

The rectifier system is based on Elteks well proven High Efficiency technology in a truly modular and scalable configuration.

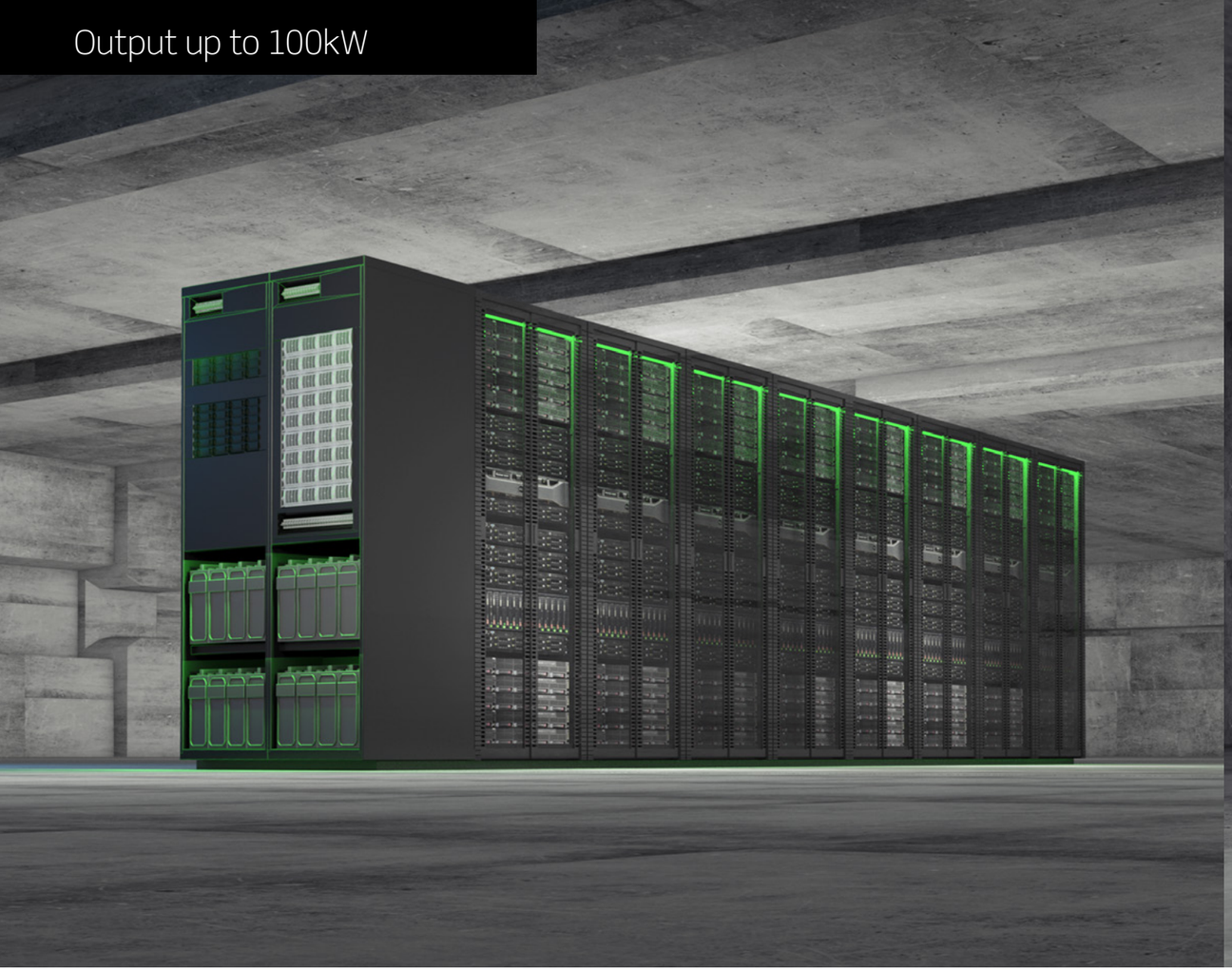
To cater for the fact that the 380Vdc standard is still not widely spread, the CPS can be extended with modular DC to AC UPS inverter based cabinets, connected to the 380Vdc bus/battery bank via a galvanically isolated DC input stage. With this concept the customer is free to select configurations with only VAC output, only VDC output, or any combinations of AC and DC, without compromising efficiency or reliability, and with the flexibility to expand the solution in either direction after installation.

On the AC input side, the CPS offers a unique alternative to the traditional Automatic Transfer Switch (ATS) between grid and diesel genset.

The ATS is a single point of failure in a traditional UPS configuration. With the CPS, the customer can avoid the ATS altogether by having a second rectifier system connected directly to the genset. This solution is particularly attractive in installations where frequent genset operation can be expected, due to unstable mains or peak shaving operation. During scheduled genset maintenance tests, the mains connected system will remain live and in standby, securing uninterrupted power to the critical loads should the genset fail.

4 options of down conversion

- Direct VDC feed to dedicated front end server power supplies (e.g. open computing)
- Direct VAC feed to conventional front end server power supplies. When a major part of the total load is VAC
- VDC feed to inverter cabinets that provide end-of-row conversion to VAC. When a small portion of total load is VAC
- 380Vdc feed to DC/DC converter cabinets that provide end-of-row conversion to 48Vdc, to feed legacy telecom equipment. Smaller, in-rack solutions are also available



2 Mini CPS

A fully scalable power infrastructure can be achieved with Mini CPS solutions. These are downscaled, but complete, CPS solutions, dimensioned to support a single row of server cabinets.

They provide all the advantages of a full scale system. In addition, they provide great flexibility, as the power infrastructure can be expanded as you grow, and the power systems can be adapted to the requirements in each row of cabinets.

Key features

- Combined VAC and 48Vdc UPS with up to 100kW total capacity
- Two cabinet solution including batteries and distribution
- Optional rectifier system connected to diesel genset
- Applications:
  - End-of-row power system in datacenters, feeding a mix of AC and DC equipment
  - Containerized, modular datacenter solutions

3 AC CPS

The AC CPS is a combination of an AC inverter system and a separate DC rectifier system. This solution replaces the conventional Automatic Transfer Switch (ATS) which often is a single point of failure, and also makes it possible to run a live full-load generator test without disconnecting the mains supply.

The AC-based CPS is built on 25/50kW Inverter Module providing high efficiency power conversion, redundancy and hot-swap capability. Each cabinet can be configured up to 200kW/450kW, and with system scalability up to 1000kW/3600kW by paralleling cabinets.

The rectifier system connected to the diesel genset is designed with the latest High Efficiency technology and is supporting the batteries in providing DC power to the inverter during long mains outages.

Key features

- AC inverter system with optional genset connected rectifier system for enhanced reliability and safe genset testing
- Cost effective, high quality solution for pure AC UPS applications
- Compatible with the Infrasuite Building Management System
- Compliant with IEC 62040

MEET AN ELTEK EXPERT

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For more than two decades, Mat has been a driving force behind product innovation at Eltek, combining deep expertise in electrical engineering with a clear understanding of customer needs and practical application.

A few words about growth...

Strong growth - no compromises. As the amount of data keeps on growing, so must data centers – in terms of capacity, reliability and efficiency. That's the opportunity and challenge for data center owners. The answer is partly revolution, mostly evolution. The revolution lies in introducing modularity, the evolution in gradually migrating from AC to DC.

Why modularity is so important...

Modularity enables quicker and easier maintenance, resulting in the ability to replace a faulty part in minutes, and with no effect on the load capability. Today, a traditional repair cycle time can be days, including either reduced load capability or reduced resilience.

A further benefit of modularity is flexible upgrade paths. A modular power system can evolve as the load equipment evolves, while still keep the core power infrastructure.

From AC to AC and DC, to pure DC...

The main arguments for DC technology in data centers are reliability and power availability (downtime in data centers is very costly and AC UPS's one of the most frequent culprits). In addition, DC UPS's are generally smaller, have a better efficiency compared to AC UPS's in online mode. Off-line, or "eco-mode", often does not provide isolation between AC input and output, and therefore transients, ripple and noise pass through, which can potentially damage the IT equipment. DC UPS's are also simpler to service and are more cost effective.

However, to enjoy the full advantage of DC technology, all the IT equipment and mechanical loads have to accept DC input. This is happening, and many of the key server manufacturers have DC input options. Still it will take some time before pure DC data centers will be the standard. In the transition period, both AC and DC will be common place.

Data centers are more than servers...

A smart way to start using DC power is for cooling and other auxiliary systems in the data center. This is a way to start saving and start getting experience with DC.

The challenges of replacing old with new...

The building itself may be a significant challenge. It may have been designed and built around a traditional UPS power system infrastructure, resulting in inefficient use of space, with many separated or isolated rooms for switchgear, switchboards, UPS's, etc. With a Converged Power Solution, there can be a reduction in the electrical infrastructure equipment and the power system can evolve alongside the evolution of the IT equipment, creating more cost effective use of building space.

Data centers and the environment...

Obviously, increased data traffic and storage will lead to higher energy consumption. However, modern DC technology will minimize the environmental effects by: reducing losses in energy transmission; intelligent cooling techniques and reuse of waste heat; high efficiency power conversion; reduced need for space, smaller buildings; efficient processing and intelligent evaluation of active traffic and load management.

This has always been Eltek's way: to have the highest levels of conversion efficiency for lowest use of electricity; the highest reliability for longer service life and less frequent replacement; to package maximum power into a minimum of space, and to integrate renewable energy generation directly into our power solutions.

It's good for the environment, good for you and good for us.

"The journey towards a modular and DC powered future has started"

Eltek expert Mat Heneghan comments on the way forward for data centers and their power systems.

Watch the video
Meet Mat Heneghan in this 2 minutes documentary

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EXPERIENCE THE POWER.

At Eltek, we are power experts with a sharp focus; to develop and provide our customers all over the world with the greatest power solutions available for applications used in an industrial context - where stable, safe and efficient supply of power is crucial.

This has been our passion and motivation for more than 40 years: to innovate and lead the way in power conversion and control. Today we help our customers optimize and safeguard operation of business-critical equipment, reduce their carbon footprint, while at the same time reduce their total cost of ownership of power supply equipment.

Nordic by birth, we have grown to service all countries and cultures, offering the best global technology and solutions matched to local requirements.

The combination of superior expertise, advanced solutions, support and service, makes it possible for our more than 2500 passionate and proactive power experts world-wide to provide our customers with a unique, powerful experience.

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