

ARTICLE

# Setting the UPS standard - the ABB DPA 250 S4

Authors:

Dave Sterlace, Global Head of Data Center Technology, ABB

Diana Garcia, Mid- to high-power UPS Product Manager, ABB



**In 2018, ABB launched its new modular uninterruptible power supply (UPS) – the DPA 250 S4. This UPS embodies, in one product, many of the technological innovations that ABB, a pioneer in the UPS business, has introduced to the market in recent times. The DPA 250 S4 will set the trend in UPS technology for years to come so it is worthwhile to explore what advantages its capabilities can bring to users. Dave Sterlace, ABB Global Head of Data Center Technology, and Diana Garcia, ABB UPS Product Manager, give the facts about the DPA 250 S4.**

***ABB:** Dave, can you please tell us a bit about the client's challenges when it comes to power protection in today's data centers?*

**Dave Sterlace:** Sure, I can! Power quality and uptime remain at the heart of data center operations. However, with the growth of hyperscale data centers, and their corresponding huge power usage, more emphasis has now been put on efficiency. You can see that with such high power bills, every little improvement in efficiency is worth a lot in dollar terms. The same lesson applies to smaller data centers too. There is also a new dimension: edge computing. The advent of edge computing requires high efficiency in sites that previously would have put the premium only on uptime. New solutions are, therefore, required to achieve both efficiency and availability.

***ABB:** What is the customer considering when choosing UPSs for the data centers?*

**DS:** In the past, UPS decisions were based around “how big is it?” “how fast can I get it?” and “how much does it cost?” with no discernable difference between the UPSs. Now, there have been significant breakthroughs in both topology and controls, allowing the UPS to be discernably more efficient and able to be a more active part of load management.

***ABB:** Diana, from the Product Manager point of view, why do you think customers choose DPA 250 rather than any other UPS?*

**Diana Garcia** In a word, “efficiency.” At 97.4 percent, the new DPA 250 S4 UPS is the most energy-lean UPS on the market – thus decreasing power losses and the total cost of ownership. Further, the modular architecture makes it easy to expand and service as you can add or remove modules even with the power on. Uptime is good too, as each module has all the functional units needed for independent operation. If one module fails, the others immediately jump in and take up the load. That way, system reliability and availability are high compared to other modular UPS solutions.

***ABB:** What features of the DPA 250 assist the customer in making their decision?*

**DS:** As Diana mentions, the decentralized parallel architecture – DPA – sure is a big plus. The ability to change consumable parts within 10 minutes affords a much lower MTTR than previous designs, boosting the reliability of the entire system. We can also install interface cards for remote control and monitoring of the UPS so we can have things like status and environmental data. This seamless integration into data center automation platforms gives a client an unprecedented insight into the running of their data center.

***ABB:** Why is DPA 250 S4 a suitable power protection solution for today's data center?*

**DG:** The DPA 250 S4 brings high efficiency and high availability together in a small package. And, as Dave says, the DPA architecture allows a customer to raise reliability significantly versus traditional monolithic and modular solutions. Unlike traditional monolithic and other modular solutions, the UPS modules are on-line swappable, which allows the user to maintain the UPS without impacting the IT equipment. Furthermore, the possibility of an N+1 design using 50 kW building blocks versus a 2N 500 kW design with a monolithic solution offers unparalleled efficiency. We're also excited about the technology behind the DPA 250 S4, which uses three-level converters and interleaving controls that give performance equivalent to more exotic technologies like silicon carbide – but without the added costs. Of course, the storage options include lithium-ion batteries with their higher power density, better recharge characteristics and longer service life – an option more and more data centers are taking up.

**ABB:** *And, Diana, what specific customers problems does the DPA 250 solve?*

**DG:** Apart from the advantages already mentioned, one aspect a lot of people forget is cooling. In a data center around 40 percent of all power consumed can go towards cooling! The DPA 250's high efficiency means less cooling is required – which , saves a lot of energy – and the cooling system is smaller, which itself, saves even more power.

**ABB:** *Can you explain the Xtra VFI feature and how it helps the overall efficiency?*

**DG:** As you may know, UPS power modules work most efficiently when they are heavily loaded. Light loading is simply inefficient. Let's say you have a DPA 250 cabinet with five modules. Xtra VFI is a clever feature that looks at the load the UPS is supporting and works out the optimal number of modules to use so they are all working in the best part of their efficiency curve. Then it switches the others to standby, ready to immediately jump into action if the load increases. This saves a lot of power and money, especially in locations with high power usage, like data centers.

**ABB:** *How easy is it to specify, install and commission DPA 250?*

**DG:** We put in a lot of design effort into making it easy to install this UPS. We see that as a good selling point. For instance, the DPA 250 has a small footprint so it's not difficult for the customer to find a corner in their, usually very crowded, facility to fit it in. The modular architecture means that the specification is flexible as we can simply add a module or two should power needs grow or be larger than anticipated. Online access to status and environmental parameters and a clear HMI also ease commissioning as does the bottom and top cable entry, which means the footprint is not increased by having an extra cabinet for cable entry or having to leave space to get cables in.

**ABB:** *Dave, if we may have your vision of the future, what challenges do customers still have, even with DPA 250, and how do you see these problems being solved in the future?*

**DS:** Moving forward, I think we'll see the UPS become an even more critical part of the data center. I envision a data center as an active part of the grid, where a smart UPS could be a virtual power plant, taking on functions like frequency response, load balancing and demand response, allowing data center operators more flexibility in how they run their business. When integrated with ABB Ability data center automation systems, the data center of tomorrow will function as an active, integral part of a smart city's electrical and IT fabric.

**ABB:** *Dave and Diana, thank you for your time!*