

MNS-UP: LOW-VOLTAGE SWITCHGEAR COMBINED WITH MODULAR UPS

MNS-Up combines ABB's Conceptpower DPA500 uninterruptible power supply (UPS) and ABB's MNS switchgear with Emax2 circuit breakers into one product. This flexible, integrated product delivers a host of benefits.

Although the data center market is continuously growing and changing, the demands on site electrification have not altered much. The principal demands are:

- Power availability, as the nature of the data center business means that unplanned outages are unacceptable.
- Reduction of footprint to increase the space available for IT equipment.
- Flexibility to adapt the power supply to continuously changing demand.
- Reduction of installation time to make a "pay as you grow" approach to power expansion fast and easy.

To accommodate these requirements, ABB has introduced MNS-Up. MNS-Up combines ABB's MNS low-voltage switchgear and ABB's Conceptpower DPA500 modular UPS into a single product, which means a large part of the power

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infrastructure can be installed as one integrated unit →01.

At the core of ABB's electrification business is the MNS switchgear platform, which has been evolving for over 40 years. The full breadth of ABB technology – including automation products, breakers, switches, control products, connection technology, protection and wire management – is leveraged in the MNS design.



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01 MNS-Up combines ABB's MNS low-voltage switchgear, with Emax 2 circuit breakers, and ABB's Conceptpower DPA500 modular UPS into a single integrated product.

02 DPA 500 UPS modules can be removed or added without powering off.

MNS-Up integrated UPS and switchgear is an MNS variant intended for critical power applications. For a 500kW installation, MNS-Up can save up to 10 percent of the space needed versus a conventional setup; for 2 MW or more, the saving

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can be up to 30 percent. MNS-Up provides all the switchgear feeders (eg, network incoming, generator incoming and bus tie) as well as line starters, motor starters and modular capacitor banks.

The DPA500 UPS modules are located in dedicated sections but with the same busbar systems as the switchgear. This direct coupling is a key aspect of creating a single product. Usage of the MNS standard busbar system also guarantees maximum layout flexibility, allowing UPS sections to be placed in the middle or side of the layout.

Connections between the UPS modules and busbars are part of MNS-Up, so they are completed and tested in the factory, eliminating the potential for the trouble that can sometimes

accompany the site works required by conventional solutions when connecting switchgear and the UPS using cables or bus ducts.

To maximize scalability and reduce the number of spare parts required, only one size of UPS module (100 kW) is used. Each section can host up to five modules and by paralleling six sections a total power capacity of 3 MVA can be attained.

With DPA500, each 100 kW UPS module contains all the hardware and software required for full system operation, which eliminates potential single points of failure. Modules can be replaced without powering down, which makes maintenance and replacement straightforward →02.

Even though each UPS module has its own bypass, the switchgear also includes a central bypass that is common to all the UPS sections that might be accessed during maintenance operations. To maximize the integration of the switchgear and UPS, this bypass is in a standard switchgear bus tie, creating a direct connection between the incoming and outgoing busbars of the UPS modules.

The advantages of the MNS-Up single-product approach are evident even in the tendering phase, in which the customer only has one purchase procedure instead of two (switchgear and UPS), and continue right up to the test phase in which the factory acceptance test merges switchgear and UPS testing procedures, saving time and cost.

The advantages of MNS-Up do not end with the delivery and installation of the product: The benefits of a low total cost of ownership for the data center operator last throughout the entire life cycle of the product. Further, conventional solutions have different life expectancies for switchgear and UPS (30 and 12 to 15 years, respectively) and at the UPS end-of-life interconnections also must be checked and possibly renewed. With MNS-Up, these interconnections are an inherent part of the switchgear, so are guaranteed for 30 years. Thus, the UPS replacement at end-of-life is faster and more cost-effective compared to the conventional solution. •