



Reliability, flexibility and efficiency: providing secure power for Sentrum

Location:

United Kingdom

Segment:

Data Centre

Problem:

Sentrum needed a UPS installation that would combine exceptional reliability with versatility and the highest possible level of energy efficiency.

Turnkey Solution

A system based on Eaton 9395 UPSs configured to provide N+N A/B redundancy. Eaton was also responsible for delivery to the site, installation and commissioning. In addition Eaton provides 24/7 support for the installed equipment.

Results:

The Eaton UPS system met all of Sentrum's requirements, with the company being particularly impressed by the modularity and scalability of the Eaton equipment, the high power rating it offers in a small footprint, and the exceptional levels of efficiency and reliability it delivers.

Contact Information

To learn more about Eaton, please visit www.eaton.eu/datacentres

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*Franek Sodzawiczny,
Chief Development Officer
and Co-Founder of Sentrum*

Background

Leading data centre owner and operator Sentrum has several data centres across the UK totalling over 130 000 m² of space including technical space, disaster recovery suites and offices. Sentrum was the first operator to offer fully bespoke and scalable solutions with a dedicated plant for every data suite. The company offers customised solutions that meet the highest specifications and enable clients to tailor every aspect of their data suite – including the power and technical configurations – to suit their individual business requirements.

Challenge

During the construction of its Woking data centre, Sentrum undertook a review process in order to select the optimal UPS equipment for its needs. The company needed a solution that would combine high flexibility with high performance levels, compactness, energy efficiency and value for money.

To ensure that these criteria were met, the company's experienced engineers carried out an in-depth evaluation of the available options.

Solution

Following this detailed review, Sentrum selected Eaton to supply the UPS installation for its new Woking data centre. The scope of supply covered all of the AC systems and included not only the provision of the UPS units themselves, but also installation, interconnection, assembly and provisioning of the battery racks, and commissioning. Eaton was also responsible for all of the logistics operations associated with the UPS system, which were by no means trivial as the total weight of the UPS systems and batteries used on the site exceeded of 760 tonnes. Throughout the project, Eaton worked in close cooperation with Sentrum's own engineering and contracting teams, and with third-party contractors as required.



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The UPS installation at Woking comprises 112 Eaton 9395 UPSs with ratings between 275 kVA and 825 kVA. These are standard UPSs with only minor customisations – including a special paint finish and the addition of Sentrum branding – but the installation itself is a completely bespoke design that was carefully tailored by Eaton to meet Sentrum's exact requirements.

It was designed from the outset to allow full advantage to be taken of the inherent modularity and versatility of the Eaton solution, and further UPSs can be readily added to meet future growth needs.

Thanks to their transformerless design, all of the units in the Eaton range have a footprint that is up to 60% smaller than typical competing units. They also employ double-conversion topology to ensure the best possible protection for the connected loads. Eaton's innovative design has successfully addressed the efficiency issues often associated with this type of UPS, allowing the units to deliver a typical efficiency of 94% at full load, falling by just 1% to 93% at half load.

Since UPSs invariably operate most efficiently at high loads, 9395 UPSs also incorporate Variable Module Management System (VMMS) technology. VMMS monitors the power requirements of the UPS system load and, taking advantage of the modular design of the UPSs, it ensures that only those modules necessary to supply the load at any particular time are in service. The remaining modules are held in a low-power standby state, and can be brought online in less than two milliseconds when the load increases.

This allows the modules in service to operate efficiently because they are highly loaded, and the modules on standby consume very little power. As a result, large energy savings are possible.



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In addition, the 9395 UPSs support Energy Saver System (ESS) technology, meaning that the UPS is automatically bypassed when the incoming mains power quality is good, but is switched back to double-conversion mode in less than two milliseconds when incoming power quality is in any way impaired. This fast transition is invisible to the loads and efficiencies of up to 99% can be achieved when mains power quality is good. It also delivers excellent total harmonic distortion performance without the need for filters, which are inherently inefficient.

High efficiency is a significant additional benefit, as it not only directly cuts Sentrum's energy costs, but also means that the UPSs generate less heat, reducing cooling requirements and extending the life of UPS components and batteries.

To ensure maximum security of supply, the Eaton UPS installation at Sentrum incorporates N+N A/B redundancy, which essentially means that two sets of UPS equipment operate

independently but fully synchronised. If the set supplying the loads suffers a failure, an instant hot-swap transfer can be made to the second set. This guarantees that the loads always remain powered and that operations are undisturbed.

During the installation and commissioning phases of the project, Eaton provided comprehensive project management services, and was successful in ensuring that all major deadlines and targets, including those relating to equipment deliveries, were met. To help Sentrum's engineers familiarise themselves with the equipment and take full advantage of its capabilities and features, Eaton also provided in-depth training both on-site and at Eaton's UK facility.

Sentrum has since awarded Eaton a 24/7 support contract for the UPS installation, including a service level agreement that specifies a maximum response time of four hours.

Results

The design, installation and commissioning of the installation at Sentrum's Woking data centre was completed smoothly and on schedule. The systems are now up and running and, most importantly, meeting Sentrum's business needs. The solution also provides scope for further convenient and cost-effective development and expansion as the company's business expands.

"Sentrum is constantly striving to maximise energy efficiencies within its operations, while also ensuring delivery of an outstandingly reliable service," said Franek Sodzwiczny, Chief Development Officer and Co-Founder of Sentrum. "For these reasons, the high efficiencies and proven reliability of Eaton UPS systems are particularly attractive to us. We also get first-class support from Eaton, and it is clear that the company's engineers have a very good understanding of the specific requirements and challenges associated with data centre operations."

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