Success Story: Tissat

Markets Served
Data centres

Eco data centre sets new standard for the future

Location:
Spain

Segment:
Power quality

Problem:
Ensure uninterrupted power for Walhalla, one of Spain's most advanced eco data centres meeting the needs of cloud-based services, while simultaneously cutting energy consumption.

Solution:
Eaton 9395 550 kVA UPSs using Variable Module Management System (VMMS) and Energy Saver System (ESS)

Results:
Eaton's 9395 UPSs are helping the award winning Walhalla data centre achieve 99.995 per cent availability

Contact Information

Juan Manuel Lopez
Project and Service Manager
JuanManuelLopez@Eaton.com

Marta Molina
Marcom Manager
MartaMolina@eaton.com

Background

Spanish ICT service provider Tissat, founded 20 years ago to develop communications infrastructures, has evolved over the years into a provider of advanced technologies for complex IT environments. The recent addition of cloud-computing services to its portfolio meant that the company needed a modern data centre that would meet the needs of cloud-based services while simultaneously taking advantage of the latest eco-efficient technologies in order to cut energy consumption.

Opened in September 2011, and named after the Nordic myth of a large majestic hall ruled over by the god Odin, the Walhalla facility is one of Spain's most advanced data centres. Located on the Jaume I University science park in Castellón, close to Valencia on Spain's Mediterranean coast, Walhalla provides Tier-IV standardised hosting services for private and public-sector customers looking to take advantage of colocation and cloud computing. Walhalla is operated by Tissat, which employs over 200 professionals in their offices in across Spain, employing more than 120 professionals in Valencia, Madrid and Murcia.

Challenges

To ensure uninterrupted power for the data centre, Tissat needed a power quality solutions provider that shared its own commitment to using the most advanced technologies to deliver the best possible results.

As the project objectives included reducing power consumption and achieving maximum energy efficiency, Tissat also required its partners to deliver ecologically innovative solutions. Ultimately, the company needed high-performance Uninterruptible Power Supplies (UPSs) that would offer significant savings in power consumption.

"Power disturbances are unacceptable for a service centre providing cloud services. Each data processing room has two separate electricity feeds, and each feed has a redundant UPS solution with one UPS in use and one for redundancy."

Fernando Polo,
Tissat's Walhalla project designer

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Solution

Walhalla now has one 500 m^2 data processing room in operation, with four Eaton 9395 550 kVA UPSs guaranteeing a high-quality redundant and continuous power supply for the servers.

"Power disturbances are unacceptable for a service centre providing cloud services. Each data processing room now has two separate electricity feeds, and each feed has a redundant UPS solution with one UPS in use and one for redundancy. This means that if one power feed fails, the servers can keep running", explains Fernando Polo, Tissat's Walhalla project designer.

Walhalla incorporates quintuple redundancy to mitigate against any chance of failure. This means that in addition to two redundant UPS systems, there are three power sources in use: the mains power grid and two independent gas motors that are connected to the mains gas supply.

The modern data centre also has a highly advanced solution for producing energy: The centre uses trigeneration, commonly referred to as combined cooling, heat and power (CCHP) – a method where electricity, useful heating and useful cooling are generated simultaneously from the same original heat source. CCHP can attain higher efficiencies per unit of fuel than cogeneration (simultaneous generation of electricity and useful heat) or traditional power plants. In the first phase of the project the energy for powering the data centre is provided by gas motors. In the next phase, fuel cells will be used as the power source.

Tissat now uses Eaton's Variable Module Management System (VMMS) and Energy Saver System (ESS) technologies at Walhalla to help achieve greater efficiencies without compromising on data centre reliability.

With ESS, the 9395 UPS achieves 99 per cent efficiency, as the technology allows the UPS to provide mains current to a load when the input is within acceptable voltage and frequency limits. At lower load levels, VMMS maximises system efficiency in double-conversion mode by automatically concentrating the load on the minimum number of UPS power modules. In Walhalla, these technologies are implemented in such a way that one of the electricity feeds uses ESS, whilst the other feed uses VMMS technology.

Results

Following their successful installation, Eaton's 9395 UPSs now guarantee a high-quality redundant and continuous power supply for the servers in the first of the data rooms at Walhalla. The second equivalent room, also equipped with Eaton technology, is scheduled to be completed in the next phase. Not only are the highly-sophisticated Eaton technologies helping to ensure maximum data reliability, but they also help increase the centre's overall productivity and improve energy efficiency by optimising the UPS's energy consumption.

Walhalla has received a Tier IV rating from the Uptime Institute, which is the most stringent level and implies that the centre is able to guarantee 99.995 per cent availability in all circumstances. Walhalla was also recognised in 2010 with a Data Centre Leaders' Award for Innovation in the Medium Data Centre.

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Eaton Industries Manufacturing GmbH
Electrical Sector EMEA
Route de la Longeraie 7
1110 Morges, Switzerland
Eaton.eu

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