

Success Story: Royal Caribbean

Markets Served
Marine/Offshore

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Allure of the Seas is a sailing city with UPS protection

Location:

USA

Segment:

Marine & offshore industry

Problem:
The ship's operations - such as navigation equipment, ship automation, emergency power, lighting, as well as commercial applications - need reliable, clean and safe power.

Solution:
Eaton delivered over 20 double-conversion, online marine UPSs to the ship. On board the ship is the first ever marine application of Eaton's Energy Saver System (ESS) technology, which enables the UPS devices to reach an industry-leading efficiency level of 99 per cent.

Results:
All equipment was delivered and installed on schedule. ESS technology helps save tens of thousands of dollars in energy costs every year.

Contact Information
To learn more about Eaton UPSs, visit www.eaton.com/powerquality

"We are extremely satisfied with both the delivered product quality and the service provided," says Juha Rokka, Senior Superintendent at Royal Caribbean International.

Background and Challenge

Allure of the Seas is the ultimate achievement in ship building - it is the most advanced cruise ship ever built. Its sister ship Oasis of the Seas, completed in 2009, set the bar for the concept and vision of a modern cruise ship, and Allure of the Seas took energy efficiency to new heights. Both ships rely on Eaton's UPS protection for passenger safety and comfort.

Advanced technology is everywhere on board the world's largest cruise ship. LAN-connected televisions in the staterooms and interactive displays throughout the ship provide passengers with an easy way to make reservations for the many restaurants and theatres aboard. They also serve as passenger guides to various activities offered in the vessel's seven themed areas - from boutiques, spas and casinos to a full-sized carousel, rockclimbing walls and a science lab for children.

Along with a variety of entertainment options, Allure of the Seas is also impressive in terms of motor power - its 100-megawatt output corresponds to the electricity needs of the city of Turku, Finland, where the ship was built.

Solution

Eaton helped this massive vessel meet its power supply challenges with a delivery of over 20 double-conversion, online marine 9395, 9390, 9355 and 9155 UPSs. They guarantee the consistent flow of reliable, clean and safe power for the ship's operations - such as navigation equipment, ship automation, and emergency power and lighting - as well as for commercial applications, including casinos, theatres and more. The most business-critical applications on board are protected by two 350-kVA marine 9395 UPSs.

EATON

Powering Business Worldwide

Eaton Corporation is a diversified power management company with 2010 sales of \$13.7 billion. Celebrating its 100th anniversary in 2011, Eaton is a global technology leader in electrical components and systems for power quality, distribution and control; hydraulics components, systems and services for industrial and mobile equipment; aerospace fuel, hydraulics and pneumatic systems for commercial and military use; and truck and automotive drivetrain and powertrain systems for performance, fuel economy and safety. Eaton has approximately 70,000 employees and sells products to customers in more than 150 countries. For more information, visit www.eaton.com/powerquality

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"The importance of energy efficiency is constantly increasing in ship engineering and building. The highest priority, however, continues to be passenger safety," says Juha Rokka, Senior Superintendent at Royal Caribbean International.

"In these areas, UPS systems play an essential role on the Allure of the Seas."

Although the set-up is almost identical to Oasis of the Seas, Allure of the Seas features some new Eaton innovations. On board the ship is the first ever marine application of Eaton's Energy Saver System (ESS) technology, which enables the UPS devices to reach an industry-leading efficiency level of 99 per cent. The efficiency improvement the ESS brings is dramatic: at small loads the efficiency level can be improved by up to 15 percentage points, and at higher loads, improvements of about 5 percentage points can be

achieved. These improvements save tens of thousands of dollars in energy costs every year.

In addition, Allure of the Seas was the first ever ship on which Eaton's Intelligent Power Manager software for controlling and managing the UPS system performance was implemented.

"We are extremely satisfied with both the delivered product quality and the service provided," Rokka concludes.

Results

Eaton has firmly established its position within the Finnish ship-building cluster, having co-operated with the STX Europe ship yard in Turku and Royal Caribbean International for over ten years. Eaton's power protection solutions are now employed in ten of Royal Caribbean's cruise ships.



Eaton 9155, 9355, 9390 and 9395 Marine UPS

Allure of the Seas

- The largest cruise ship in the world
- Maiden voyage 1 December 2010
- Length 361 m, width 66 m, height 72 m above sea level (at highest point), gross tonnage 225,000, 16 passenger decks
- Accommodates 6,360 passengers and 2,100 crew members
- Home port in Fort Lauderdale, Florida, USA
- Utilises more than 20 of Eaton's largescale marine UPSs
- The first ever marine application of Eaton's Energy Saver System technology, saving tens of thousands of dollars annually

To find out more, visit www.allureoftheseas.com



Eaton 9355 Marine UPS on board Allure of the Seas