

# DATA CENTRE



## Green Data Centre

A global company operating in the areas of petroleum and natural gas, electricity, petrochemicals, engineering and construction selected Riello UPS to protect the power supply to one of the greenest Data Centres in the world. The new Data Centre in Europe hosts all central processing computer systems, including administrative information and high-performance computing systems of the company. The aim was to reach an average P.U.E. value of less than 1.2 per year. This is a truly exceptional target for a Data Centre with energy consumption of up to 30 MW of useful IT power, in an area of 5.200 square meters and across six IT rooms.

Riello UPS has been involved since the early stages of the project with a very ambitious double aim for the UPS system: to protect the power supply while simultaneously achieving maximum energy efficiency. In fact, Riello UPS created the innovative 200 kW and 500 kW Master HP Ultra High Efficiency (UHE) UPS, which can achieve 99.5 percent efficiency. This extremely high efficiency is achieved thanks to the power converters in stand-by mode, which instantly activate if the electrical power supply is disrupted, as defined by the client parameters and the rules on electrical power supply quality.

### SOLUTION: MASTER HP UHE

- High efficiency (up to 99.5%)
- Power Factor = 1 (kVA = kW)
- Input stage with IGBT technology
- Compact and reliable
- Galvanic isolation
- High overload capacity



## New Facility

A leader in Car Insurance in Europe moved into their purpose-built headquarters in a city center. The building was 220 000 sq. ft. in size and split over 11 floors. The facility also houses a dedicated Data Centre that supports the company's internal applications, customer-facing systems, telephony and other ICT infrastructure. Having the Data Centre on-site ensures that the company has enough system capacity to support critical business data and resources 24/7. The requirements for the power protection system required a solution that would offer resilience, reliability and scalability. Therefore, the equipment was tested extensively, and technologies were compared. As a result, although

some transformer free units were more economic, they were not robust enough to support the company's critical infrastructure.

Riello UPS with a business partner commissioned and tested two sets of two 120 kVA Master MP (MHT) and Mastert HE (MHE) UPS in parallel. Each UPS has two strings of 40 batteries, a battery rack and a Ronis key to interface with the site switchboard. The Master MPS devices have a small footprint and are highly efficient – operating at 95.5% efficiency means that they waste less power. By running them in parallel, they will provide enough power to cope with both the current and future business requirements.

Installed in an N+N configuration, additional UPS units can be added when needed. These extra units can be installed and connected without requiring planned downtime, meaning that there is no disruption to 24-hour business operations.

The installation was carried out over a period of 8-10 weeks, during which time the project team faced several challenges that were unique to working on a property development in a busy city center location. Parking restrictions around the building meant that delivery of equipment had to be coordinated with precision and undertaken swiftly. Once on-site, the units had to be forklifted to its final location.



## AEROSPACE



This space center is home to the main European space missile launch center. In a strategic location that makes the most of the earth's rotational energy by receiving additional speed at launch.

Riello UPS was chosen to supply various products in different model and power range to the new spaceport launch site.

Reliable power protection at your fingertips to guarantee several infrastructures: flight preparation buildings, launch ramps, and solid propellant factories.

### SOLUTION

- 1 x 10 kVA
- 3 x 20 kVA
- 4 x 40 kVA
- 1 x 80 kVA
- 8 x 120 kVA
- 4 x 160 kVA

## MILITARY



The modernization of the third largest air force in the Middle East and Africa included revamping of all the uninterruptible power systems installed in all air force bases. After thorough analysis and evaluation of the main vendors on the market, Riello UPS was chosen as the most reliable supplier and the best to answer their needs.

Riello UPS will be supplying a total of 108 Multistandard and Sentry MPS UPS, for a total power of approx. 19 000 kVA. The supply started in January 2008 and includes numerous systems made up of UPSs in parallel redundant configuration with power ratings of 60, 80, 160, 400 and 500 kVA. These UPSs will allow the IT, control and defense systems to work with complete security.

Riello UPS needed to adapt its UPS to the local power supply characteristics, to provide maximum efficiency in environments with high temperatures. Riello UPS systems guarantee a filtered, stable and reliable power supply without disturbances.

# TELECOM



One of the major infrastructure operators for wireless telecommunication in Europe has made a firm commitment to developing its network, which currently comprises more than 28 000 sites and positions the company to develop new generation networks.

This Telecom provider business is structured in four major areas: telecommunications infrastructure services; audiovisual broadcasting networks; security and emergency service networks; and solutions for smart infrastructure and services management - smart cities and the "Internet of Things" (IoT).

Riello UPS has been involved with the Telecom provider in the challenge of guaranteeing continuous secure power and achieving the maximum energy efficient power protection for their IT infrastructure.

For that reason, the company chose to install the Multi Power (MPW) modular solution from Riello UPS.

The Multi Power is designed to protect any critical high-density computer and IT environment, while achieving maximum availability. This kind of modular and reliable solution is perfect for any medium to large business applications. The Multi Power grows along with the demands of the business without oversizing the UPS - optimizing both the initial investment and the Total Cost of Ownership. The solution for this Telecom provider has a dedicated stylish cabinet (Power cabinet) suitable to accommodate up to 7 UPS Power Modules.

To accommodate the customer's future needs each Power Cabinet can scale from 42 kW to 294 kW by simply adding new plug in modules. The company decided to install 22 Power Cabinets in

14 sites: the total power installed was approximately 2730 kW.

Riello UPS was chosen thanks to the following:

- outstanding performance: advanced technologies guarantee maximum rated output with output unit power factor (kVA=kW); regardless of the operating temperature;
- maximum availability: innovative control technologies and a design that achieve highest level of power availability;
- scalability: the user can easily increase/expand power protection adding additional Power Module or Battery Units.



# HEALTHCARE



One of the biggest hospitals in Europe provides emergency and specialist healthcare. The Emergency Department is based at the Hospital alongside critical care facilities, high-tech operating rooms, maternity services, cancer care, pain clinics and a wide range of outpatient services from eyes, ears and skin to specialist therapies. The Catheter lab provides lifesaving facilities to patients and, when the surgeons are carrying out high risk PCI procedures, they require an uninterrupted X-ray screening facility. Across the two laboratories more than 230 patients are treated each month. Therefore, a temporary UPS was needed immediately at the Hospital when refurbishing one of the existing Catheter labs.

Besides the constraints on physical space within the hospital, the Facilities and

Estates department also had other restrictions which impacted the viable solution. Ducts underneath the roads within the hospital grounds meant that using a crane to deliver and off load a temporary unit was impossible due to the weight restrictions. The hospital staff needed to complete procedures in the temporary catheter lab before the battery backup time was finished due to a blackout or in case a generator failed to start. To let the staff know how much time there is left, an emergency beacon was installed in the scanner unit and it was interfaced with the hospital's existing BMS. As a result of the analysis of all restrictions, the Hospital decided to install a 10 ft Multibox 252 from Riello UPS with UPS, batteries, air conditioning

unit, ATS and terminals for generator connection. The Multibox 252 can be delivered and installed with a truck and fork lift.

## SOLUTION

- 252 Multi Power UPS in a 10ft container
- 7 Modules of 42 kW block in a 6+1 configuration.
- Dual String Battery system
- Air Conditioning Unit
- Switchgear panel
- Diesel Generator changeover panel
- Cornwall Hospital required 84 kW for 55 mins

# TRANSPORTATION



## Railway

An infrastructure and construction company with a long-standing specialized experience in the design, management, installation, testing and commissioning of complete systems for rail, urban and underground transportation was chosen to complete a subway line in one of the major cities in Europe. It will be capable of carrying 600 000 people a day and it is the first major public transport infrastructure in that country to be remotely managed and controlled by an integral automation system. It is currently one of the largest ongoing construction sites in Europe with more than 30 construction areas. After an in-depth evaluation of main manufacturers, Riello UPS was selected as it was best able to meet the clients unique and challenging requirements of guaranteeing

continuity of power throughout the entire underground network under all conditions.

All 25 MPSs supplied are particularly suitable for mission critical applications and have been designed with a rating to ensure maximum operating reliability. The rectifier has been overrated to ensure battery recharging within 8 hours. Also, the bypass line is designed to ensure selectivity of the plant protection with shortcircuit currents of up to 8 kA. The UPSs, after thorough factory testing together with the customer, will ensure power protection of the supply to the line of each station and will ensure the highest level of protection for the automation, control and safety devices.

### SOLUTION: MASTER MPS SERIES

- MPS 100: 1 unit
- MPS 150: 1 unit
- MPS 200: 13 units
- MPS 300: 9 units
- MPS 400: 1 unit

### Total power installed 5950 kVA

- Panels to limit breaking capacity
- On-line double conversion technology
- Battery recharge guaranteed within 8 hours
- Short-circuit current up to 8 kA (guaranteed for 100ms)
- Overrated Back Feed Protection
- Use of cables in compliance with standard CEI 20-38
- Battery Care System





## Marine

One of the largest Shipbuilders in Europe has been deploying Riello UPS systems onboard their vessels for over 10 years. Together, these two business partners have merged cutting edge marine engineering with innovative developments in power protection solutions to ensure ship-wide power continuity and safety. With the largest design centers of its kind in Europe, the business has a strong focus on its core target markets, placing it firmly in touch with its customer's needs. The market has rewarded the choices and the work more compared to passenger ships, in which it stands out for its attention to the welfare and safety of its travelers.

The collaboration between Riello UPS and the company began in 1993, when the latter selected the company to supply UPS devices to be installed on board its ships. Thanks to the quality and reliability of Riello UPS products (guaranteed by additionally stringent unique environmental testing processes), the relationship between the two businesses has outlived the changes affecting both company structures over this extended period. Considering the size and complexity of ships of this kind, it is essential for a UPS unit to intervene whenever current fluctuations or blackouts occur, so that the following devices can continue to operate:

- essential equipment for the ship's safety: equipment required for automation systems, propulsion control, navigation (e.g. radars, gyrocompass), "Public Address" systems and, at times, the emergency lights - all devices that must remain operational even in the event of a blackout.
- equipment required for running routine activities on board: namely information technology systems, including the PC network (with all its users) which processes all onboard payments; in other words, the actual economic life of the ship and its passengers.





## Airport

Riello UPS has been selected to supply power protection for the busiest passenger airport in Europe with its 38.7 million passengers.

This Airport in 2016 was the hub for international and intercontinental air traffic and constantly changes its strategy with developing the air traffic; expanding the non-aviation business transforming the airport into an exciting campus, taking mobile life and work into a new dimension of quality. Chasing an ambitious and innovative environmental protection program that takes into consideration the reduction of Carbon emissions, noise protection,

nature conservation and in the end the air quality, making it an environmentally friendly and environmentally conscious company.

This is something that the Airport and Riello UPS have in common. The airport has undergone many phases of development and the constant changes within it, in terms of growth and with technology, has meant that the demands on electrical power has increased and having the correct uninterruptible power supply is a primary element.

Riello UPS are now protecting the different services offered by the airport: security systems, emergency lighting, terminals, video surveillance and IT systems. In order to fulfill airports power supply requirement Riello UPS supplied different kind of UPS for the following application: single phase models both rackmount and tower; transformer less three phase UPS; transformer-based UPS for heavy duty applications or when no neutral operation is required.