INTELLIGENT ENERGY SOLUTIONS TO PROTECT HEALTHCARE FACILITIES

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Increasingly advanced technologies in healthcare environments

Within the healthcare sector, it is essential to guarantee patients a quality environment for their care, whether it is simply a visit, a blood sample or a complex surgical operation.
In order to ensure this type of assistance, **it is essential to take into account the availability and quality of electricity that each specific infrastructure or piece of equipment needs.**
All electrical equipment must be able to function even in the absence of mains power. Doctors and hospital staff must be able to record health information through specific equipment and transfer it to computers and printers, but also take advantage of the digital integration of devices for diagnosis with other systems such as data storage systems, historical radiological reports, intranet and localized hospital information infrastructures, Cloud and internet.
When the power supply fails, the Uninterruptible Power Supply (UPS) is the most effective standby solution to adopt. Allowing backup power with autonomies ranging from a few minutes to a few hours at the same power and load, it **enables equipment to continue to operate even in the most critical situations.**

Having a suitable infrastructure to avoid equipment and system downtime allows you to ensure maximum operational continuity, excellent performance, energy savings, lower operating costs and full digitalisation of the healthcare system.
With over thirty-five years of experience in the field of energy conversion and protection, Riello UPS implements the latest technologies in the design of its UPS, **ensuring the power supply of medical facilities and protecting equipment from blackouts or network disturbances.**

Healthcare applications

The range of medical applications for which the presence of an uninterruptible power supply is essential is comprehensive and includes facilities ranging from the emergency room and analysis laboratory to critical departments such as resuscitation and operating theaters.

The UPS that power and protect hospital departments, and the equipment used inside them, are positioned in special technical rooms so that they do not come into direct contact with the patient, safeguarding their health.

It is also essential to consider that the UPS protect not only the wards, but above all the instruments that monitor or guarantee the life of patients such as respirators, intensive care equipment, diagnostic equipment (for example CT and RX), as well as all those auxiliary services such as emergency lights (including helicopter rescue lights) and fire extinguishing systems, which may also be subject to malfunction during a power failure.

How to choose the right UPS for your hospital?

To ensure constant and quality energy to all equipment, departments and hospitals, or healthcare facilities in general, it is necessary to size the UPS and batteries so that they optimally protect critical loads from disturbances and interruptions in the electricity grid. In choosing the most suitable UPS system for the protection of all medical devices, diagnostics and data centers for patient data collection, it is necessary to take into consideration some fundamental aspects.

Some of the main parameters to be taken into account are the following:

- **Absorption peak during start-up:** this value can be very high for systems such as emergency lighting, isolation transformers, or diagnostic tools such as CT scanners;
- **Input power factor**
- **Distortion of absorbed current:** this parameter relates to the presence of harmonic currents with multiple frequency with respect to the main one and the distortion of the absorbed current;
- **Tolerance of power outages**
- **Electromagnetic disturbances** of electrical origin such as electrostatic discharges and overvoltages of electric or magnetic fields that may be present or close to the installation areas of the UPS.

Why choose Riello UPS uninterruptible power supplies

- **Maximum reliability and availability:** the use of the most modern technologies in power electronics design, from three-level IGBTs to microprocessor control, improve efficiency reliability and resilience. Furthermore, the adoption of a UPS configuration in parallel ensures redundancy to the system, which means that critical loads always have the additional protection, even in the event of a failure of an UPS or one of the its components.
- **Advanced communication:** as technology continues to progress, the UPS has also evolved and provides increasingly complete management, monitoring and maintenance software, as well as multiple connection interfaces. From clean contacts, serial, USB or network ports, to the implementation of various communication protocols, which allow you to send data and status messages in real time via cable, SMS or Internet, directly to mobile phones or service centers.
- **Flexibility of use:** tools for the design and sizing of the power protection system.
- **Reduced dimensions and costs:** advanced technology and choice of high performance components allow Riello UPS uninterruptible power supplies to achieve exceptional performance, with high power density and minimum overall dimensions.

360° customer-centric services

Technical Energy Consultant tec

- Our TEC (Technical Energy Consultant) experts bring years of experience in the energy sector. With a customer-focused and tailored approach to consultancy, our engineers and technicians assist you with the aim of achieving optimal results in terms of power quality and protection for every need.
- We provide regulatory advice.
- Design and sizing tools for the power protection system.
- We organize technical seminars.
- We offer direct support in system design.
- Help Desk by phone or email.
- FAT - Factory Acceptance Tests (Witness Test).

service

- A call center with highly specialized technicians is at your disposal.
- We offer a free swap service for small UPS.
- We provide on-site support service for larger UPSs.
- On-site service for battery replacement and transfer procedures for safe and proper disposal.
- Preliminary on-site inspections to ensure the suitability of the installation environments, followed by the commissioning of the UPS through initial start-up, to ensure its complete functionality.
- Possibility of ongoing maintenance contracts.
- We organize technical training courses.

riello connect

- A remote monitoring service designed to increase resilience and reduce the downtime of the equipment crucial for the fulfillment of your mission.
- Monitoring 24 hours a day, 7 days a week and 365 days a year by specialized technicians.
- SMS or email alerts.
- Periodic reports on the performance of your UPS.

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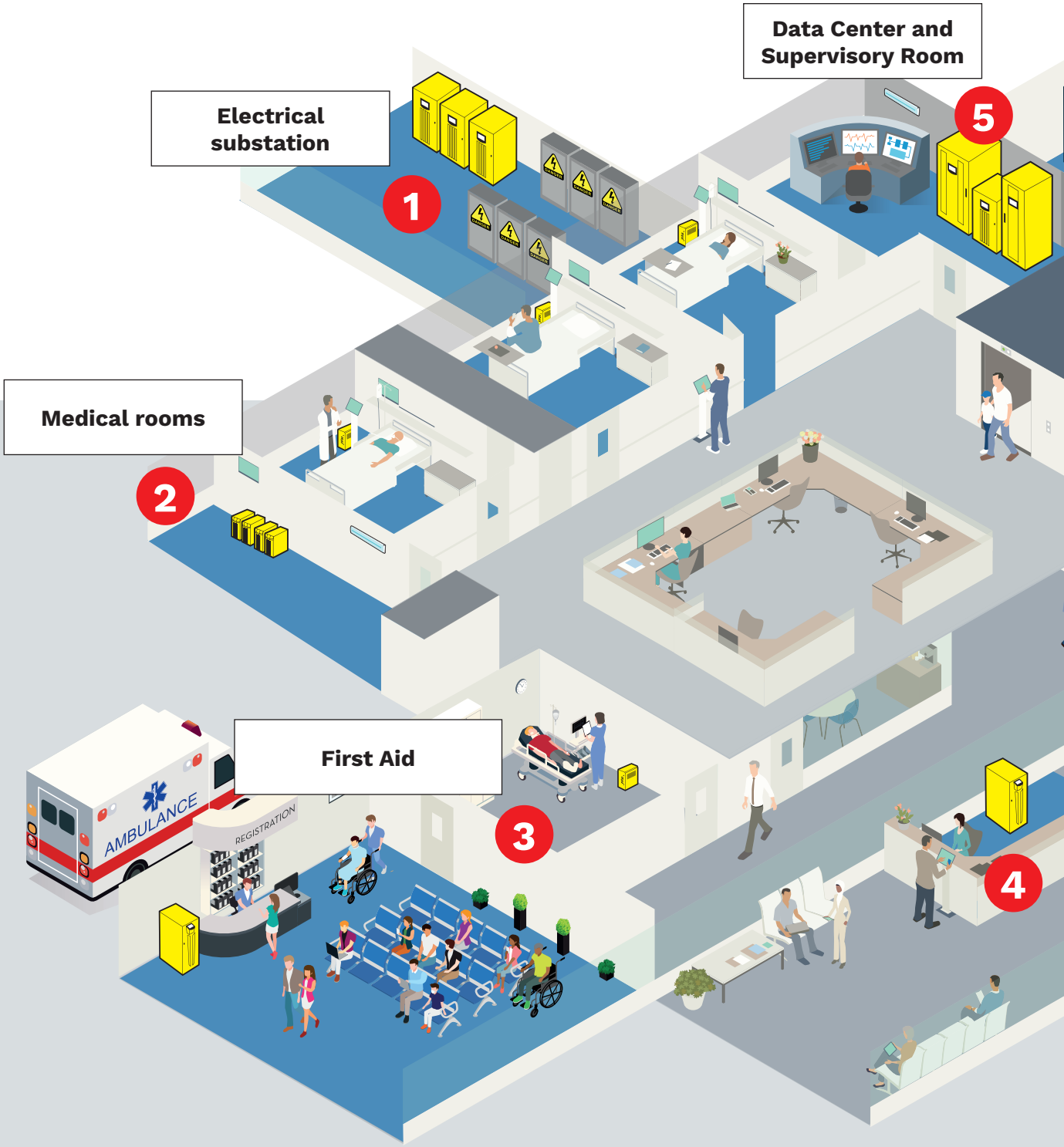
Riello UPS solutions for your needs



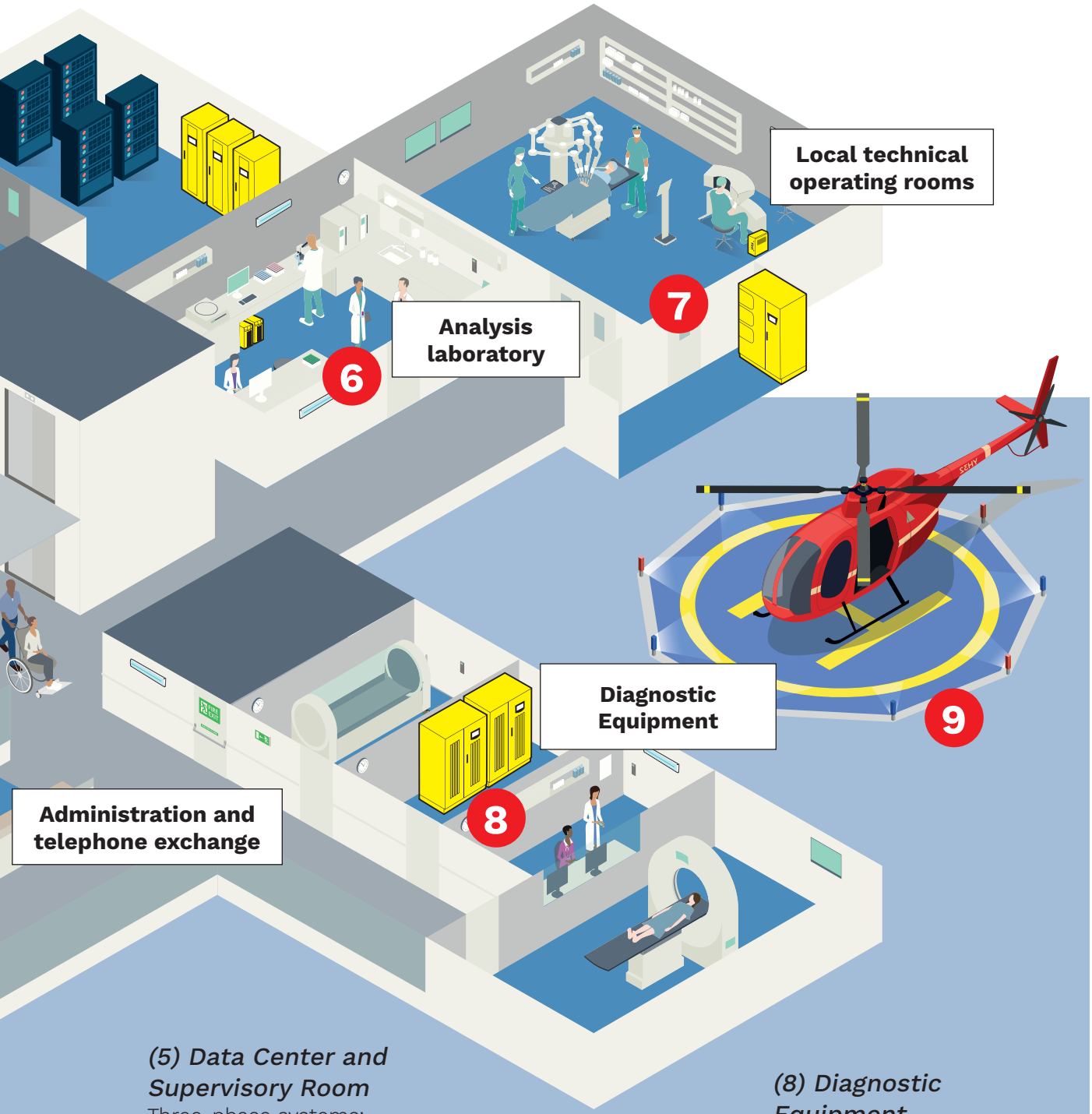
(1) Hospital electrical substation
CSS systems according to the EN50171 standard.

(2) Medical rooms
Sentinel Tower and Sentinel Dual.

(3) First Aid
Sentryum and Multi Sentry.

(4) Administration and telephone exchange
Sentryum and Multi Sentry.

Riello UPS provides healthcare facilities with the tools and functionality they need most to ensure effective electricity protection.



(5) Data Center and Supervisory Room
Three-phase systems:
Multi Sentry and Multi Power.

(6) Analysis laboratory
Single-phase and three-phase UPS systems: Sentinel Tower, Sentinel Dual and Sentryum.

(7) Local technical operating rooms
Three-phase single-phase UPS and three-phase / three-phase: NextEnergy and Master MPS.

(8) Diagnostic Equipment
Multi Sentry and three-phase UPS systems as Master MPS.

(9) Emergency lights helicopter rescue
CSS systems according to the EN50171 standard.

Riello UPS products

Development of “Made in Italy” technology, excellent results and in step with technology.

TRANSFORMER-FREE UPS from 0.7 kVA to 10 kVA

SENTINEL PRO (SEP)

1:1 700-3000 VA

- Power factor 0.9
- Operating flexibility
- Emergency function
- Battery optimisation
- Runtime expandability
- Low noise level

VFI TYPE ONLINE · Tower · ECO LEVEL 6 · USB plug · Supercaps UPS · Plug & Play installation · GS Nemko certified

See number 2 on local maps page.

SENTINEL DUAL SDH (SDH)

1:1 1-3 kVA

- Power factor 0.9
- Simplified installation
- Installation versatility
- Reduced running costs
- Runtime expandability
- Low noise level

VFI TYPE ONLINE · ToweRack · ECO LEVEL 6 · USB plug · Plug & Play installation · Hot swap battery · Energy Share

See numbers 2 and 6 on local maps page.

SENTINEL TOWER (STW)

1:1 5-6 kVA/kW
1:1 3:1 8-10 kVA/kW

- Small footprint
- Power factor 1
- High efficiency 95%
- Parallelable up to 3 units
- 3 level inverter
- Maintenance bypass
- High quality output voltage

VFI TYPE ONLINE · Tower · ECO LEVEL 6 · USB plug · Energy Share · Service 1st start · Supercaps UPS

See numbers 2 and 6 on local maps page.

TRANSFORMER-FREE UPS from 10 kVA to 800 kVA

SENTRYUM (S3T)

1:1 3:1 10-20 kW
3:3 10-40 kW

- Extensive range of solutions
- Compactness
- Efficiency up to 96.5%
- High power availability
- Smart battery management
- Maximum reliability
- Flexibility of use
- Graphic touch screen display

VFI TYPE **ON**LINE · **Tower** · ECO LEVEL 6 · USB **USB** plug

Energy Share · **Service** 1st start · **Supercaps** UPS · **SmartGrid** ready

See numbers 3 4 5 6 on local maps page.

MULTI SENTRY (MST)

3:3 60-200 kW

- Complete range 30-200 kVA
- Small footprint
- High efficiency up to 96.5%
- Zero impact on mains supply
- Flexibility of use
- Advanced communications

VFI TYPE **ON**LINE · **Tower** · ECO LEVEL 6 · USB **USB** plug

Energy Share · **Service** 1st start · **Supercaps** UPS · **SmartGrid** ready

See numbers 3 4 5 8 on local maps page.

NEXTENERGY (NXE)

3:3 250-800 kW

- Efficiency up to 97% in double conversion
- kW = kVA (pf 1) up to 40 °C
- Transformer-free UPS
- Full front access, back-to-back install
- Active Filter Mode (ACTIVE ECO)
- Colour LCD Touch Screen
- Peak shaving

VFI TYPE **ON**LINE · **Tower** · ECO LEVEL 6 · USB **USB** plug

Service 1st start · **SmartGrid** ready · **Supercaps** UPS · **Lithium** compatible

See number 7 on local maps page.

TRANSFORMER-BASED UPS from 10 kVA to 800 kVA

MASTER MPS (MPM / MPT)

- Efficiency Control System (ECS)
- Robust and reliable
- Galvanic isolation
- High overload capacity
- Extensive parallel configurations

3:1 10-100 kVA
3:3 10-200 kVA

VFI TYPE ONLINE | Tower | ECO LEVEL 4 | Service 1st start

Flywheel compatible | Supercaps UPS | Lithium compatible | SmartGrid ready

See numbers 7 and 8 on local maps page.

MASTER HE & HP (MHE / MHT)

- High efficiency (up to 95.5% in ON LINE mode)
- kW=KVA (HE Models)
- Rectifier IGBT based technology
- Galvanic isolation
- High overload capacity
- LCD display

3:3 100-800 kW (MHE)
100-600 kVA (MHT)

VFI TYPE ONLINE | Tower | ECO LEVEL 6 | Service 1st start

Flywheel compatible | Supercaps UPS | Lithium compatible | SmartGrid ready

See number 1 on local maps page.

MODULAR UPS from 15 kW to 1 MW

MULTI POWER (MPW & MPX)

- Utmost availability
- Ultimate scalability
- Unmatched power density
- Efficiency >96.5%
- Multiple controls
- Highly flexible
- Advanced comms

3:3 15-240 kW + redundancy
25-400 kW + redundancy
42-1008 kW + redundancy

VFI TYPE **ON**LINE
Modular
ECO LEVEL
USB **USB** plug
SmartGrid ready
Li+ **Lithium** compatible
Hot swap battery

See number 5 on local maps page.

CPSS - CENTRAL POWER SUPPLY SYSTEMS from 3 kVA up to 600 kVA

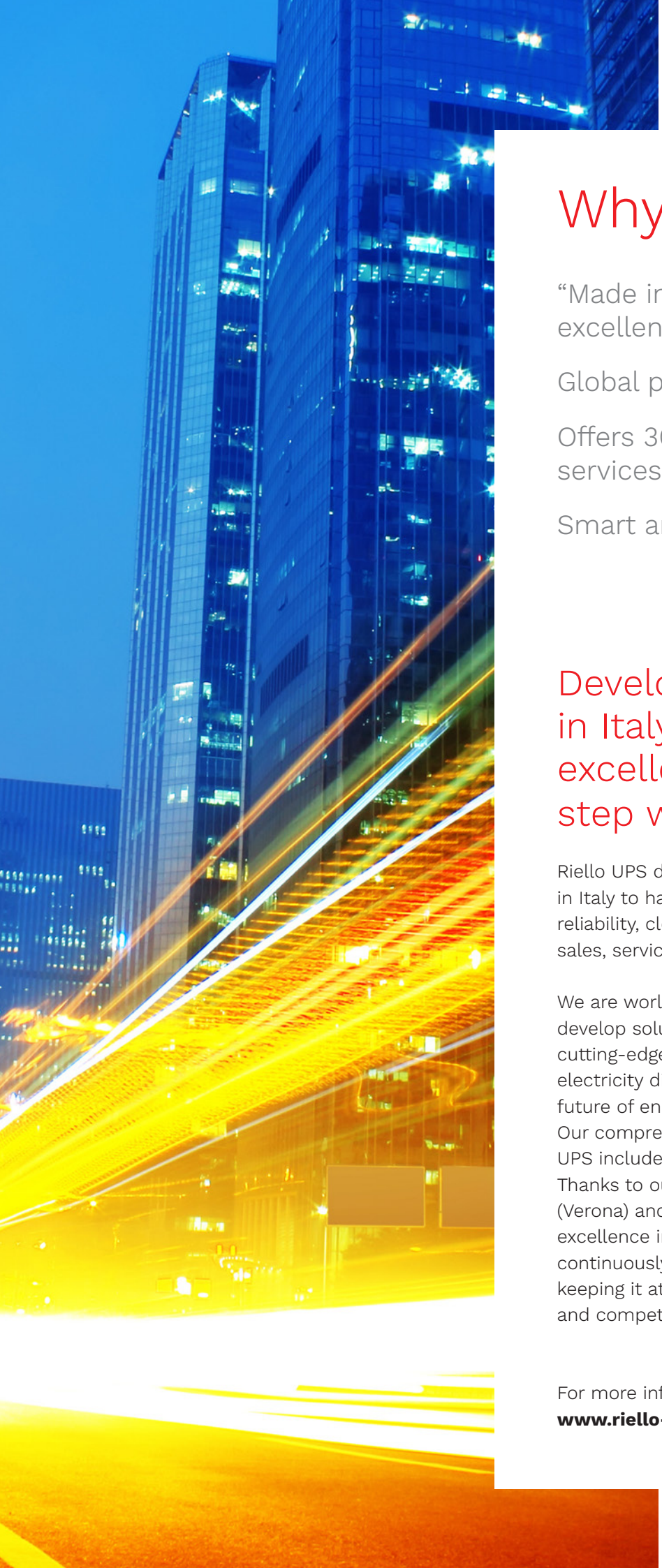
CSS / CENTRAL SUPPLY SYSTEMS

- Certified compliance with standard en 50171
- Dual input
- Protection against battery inversion
- High recharge current
- Continuous overload of 120%
- Casing compliant with standard EN 60598-1
- Batteries with

1:1 3-5 kVA
1:1 3:1 6-20 kVA
3:3 10-600 kVA

Tower

See numbers 1 and 9 on local maps page.



Why Riello UPS?

"Made in Italy" technology for excellent results

Global player

Offers 360° customer-centric services

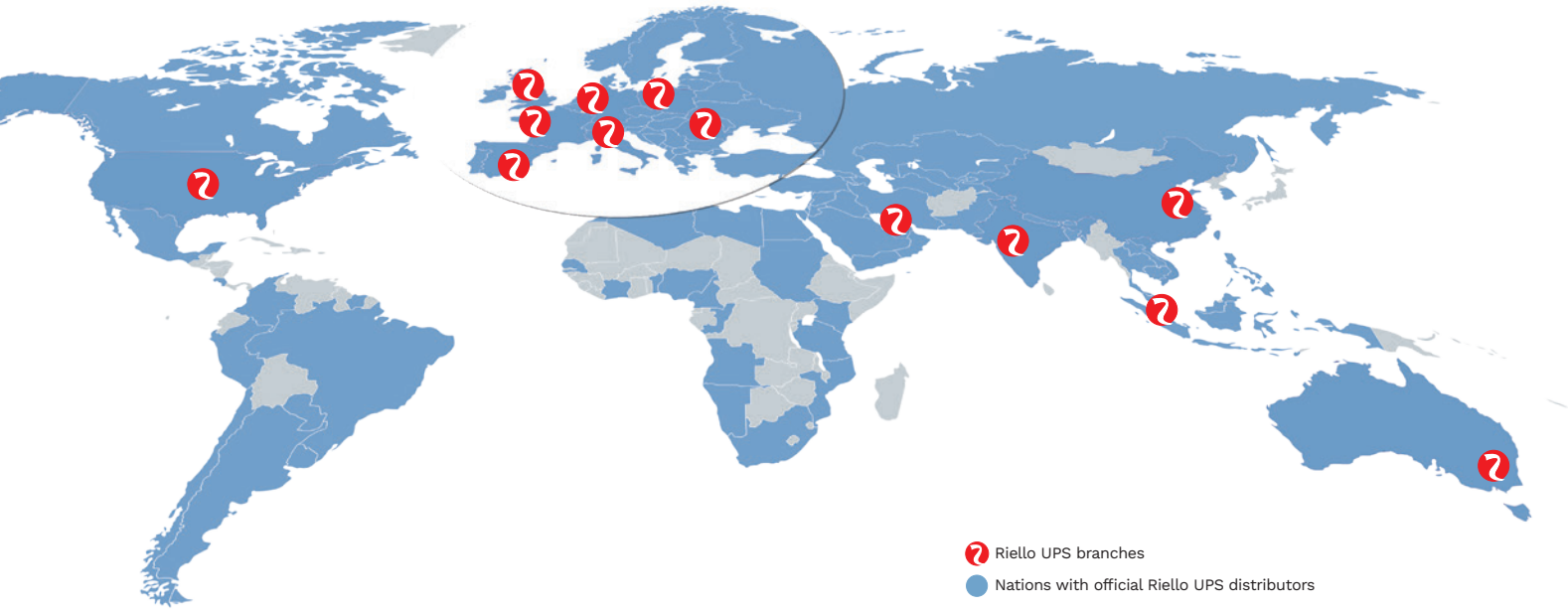
Smart and sustainable energy

Development of "Made in Italy" technology, excellent results and in step with technology

Riello UPS designs and manufactures its UPS in Italy to have direct control over quality and reliability, closely following the entire production, sales, service and after-sales cycle.

We are world leaders in the UPS market and develop solutions equipped with innovative and cutting-edge technologies ready for the smart electricity distribution grids that represent the future of energy.
Our comprehensive and award-winning range of UPS includes 23 solutions to suit every situation. Thanks to our two research centers in Legnago (Verona) and Cormano (Milan), examples of excellence in Italy and in the world, Riello UPS continuously innovates its product portfolio, keeping it at the top for performance, reliability and competitiveness.

For more info:
www.riello-ups.com



Global player

Riello UPS is a leader in Italy and firmly placed among the top 5 companies worldwide in the field of Power Continuity.
With 17 dedicated branches and a network of distributors that allows a presence in over 85 countries, it provides a very high and qualified level of service to customers.
Riello UPS is present with direct companies in Europe, the United States, the United Arab Emirates, China, India, Singapore, Vietnam and Australia.

3
PRODUCTION SITES

17
COMPANIES

85
BUSINESS COUNTRIES

250
MILLION €
TURNOVER

935
EMPLOYEES

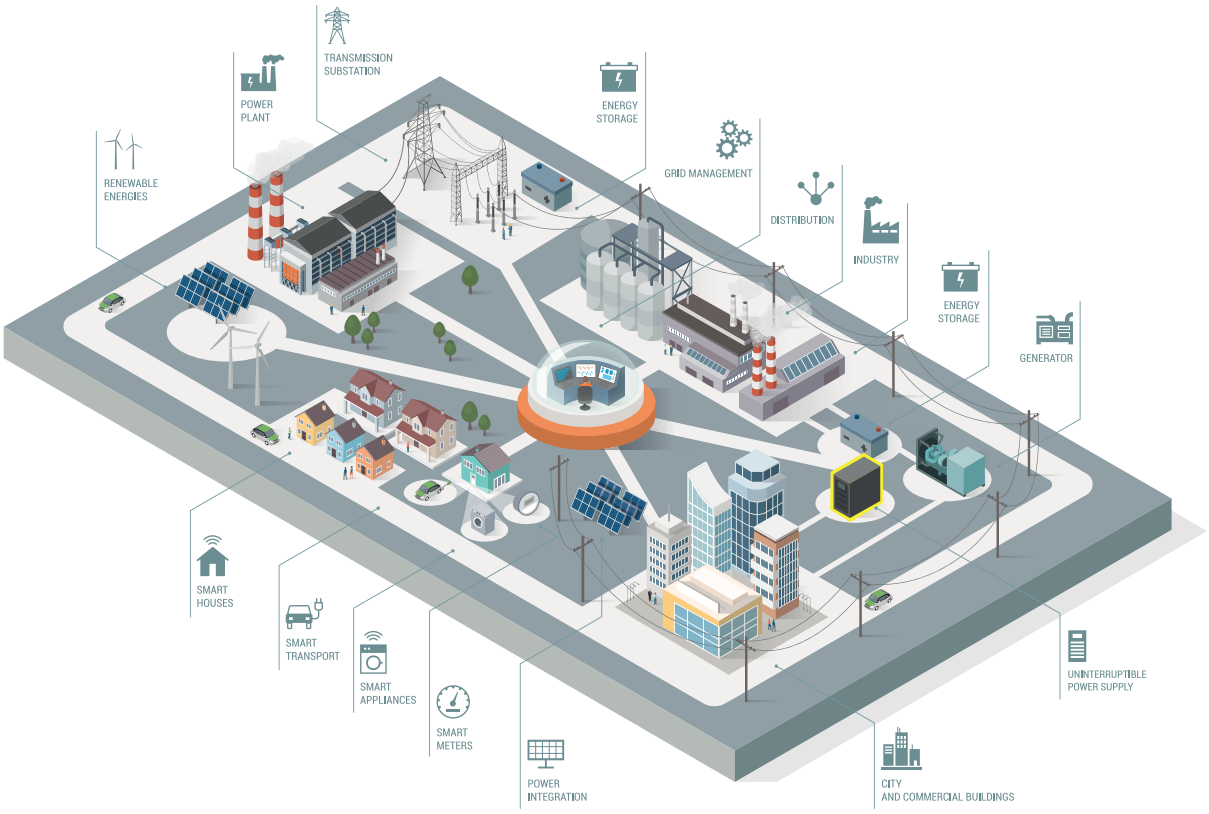
Riello UPS intelligent energy

“Reliable power for a sustainable world” Riello UPS philosophy condensed into a few simple words - a global brand constantly looking for the most innovative solutions.

Among the most difficult challenges in the world of UPS is to minimize the operating costs of energy without compromising the efficiency levels of the devices. The Eco Energy Level system, promoted by the European code of conduct, classifies UPSs on 6 levels of efficiency: Riello UPS was the first to implement it on all its lines, demonstrating how convenience is not only a purely economic aspect but also an environmental one. Compared to standard UPS, Riello solutions are more efficient, with energy savings that allow a quick return on investment and the reduction of carbon dioxide emissions into the atmosphere.

Innovating, towards a new concept of electricity

Riello UPS’s commitment to combine performance and attention to the environment also continues with the introduction of solutions for Smart Grids, a new concept of electricity grid that efficiently integrates and manages the behavior and actions of all connected users. (such as generators and withdrawal points). An innovation which, in addition to ensuring an economically more efficient operation of the electricity system, also allows the UPS to become a virtual power generation plant compatible with renewable energy sources.



References

Our customers, the best guarantee of quality

Riello UPS is the partner selected by thousands of customers all over the world. Here are some significant examples of major companies that have chosen Riello UPS technology and solutions, giving life to highly successful case histories.

Australia
- Knox Hospital
- Midlands Hospital
- Pfizer Distribution Center

Germany
- Max-Planck-Institut für Plasmaphysik Greifswald
- Universitätklinikum Aachen

Kingdom Saudi Arabia
- National Guard-Hospital i Riyadh
- MOH Abha Hospital

Spain
- La Fe Hospital, Valencia
- Lugo Lucus Augusti Hospital
- Navarra University Clinic
- Parc de Research Biomèdica de Barcelona

U.A.E.
- Medical Cities
- Jumeira Hospital

Singapore
- Seng Kang Hospital

United Kingdom
- Royal Liverpool Hospital
- Glasgow Hospital
- Papworth Hospital

Case History

Riello UPS supports the new EMERGENCY hospital designed by Renzo Piano.

Center for Pediatric Surgery of Entebbe (Uganda)

The Hospital, based on the principles of Equality, Quality, and Social Responsibility (EQS), guarantees free high-level care for Ugandan patients and children from all over Africa in need of surgery.
For this reason, Riello UPS has decided to participate with great enthusiasm in this project by donating several uninterruptible power supplies to protect the most strategic areas of the building.
The UPSs guarantee efficient and reliable power supply to all vital applications that may suffer interruptions in operations or damage due to poor electricity quality or power outages, such as the operating theaters, the analysis laboratories and related computers, diagnostics equipment (TAC), the medical gas distribution system, and the CED.

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