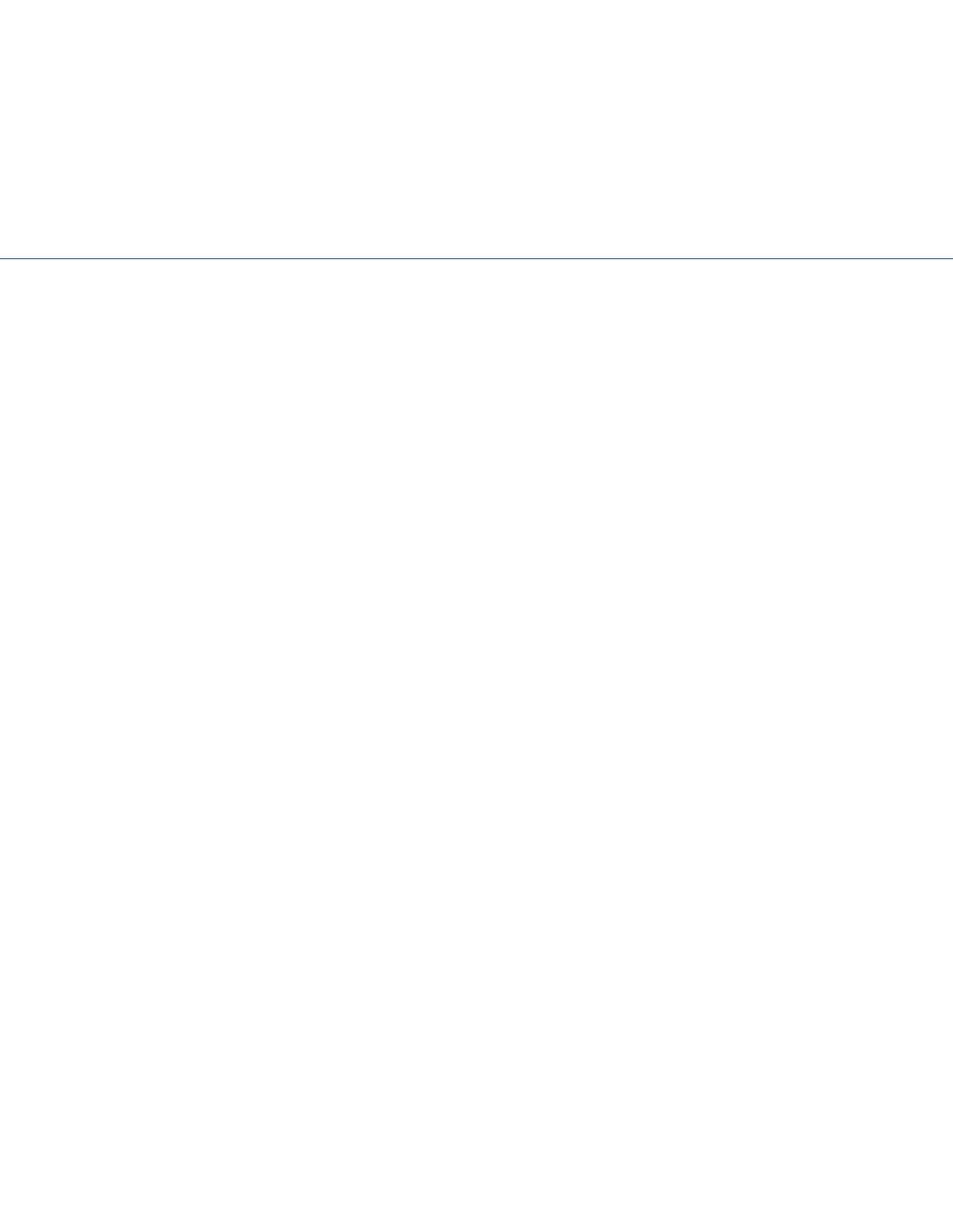


RELIABLE POWER FOR  
A SUSTAINABLE WORLD  
**NORTH AMERICA CATALOG**





**Reliable power for a sustainable world**



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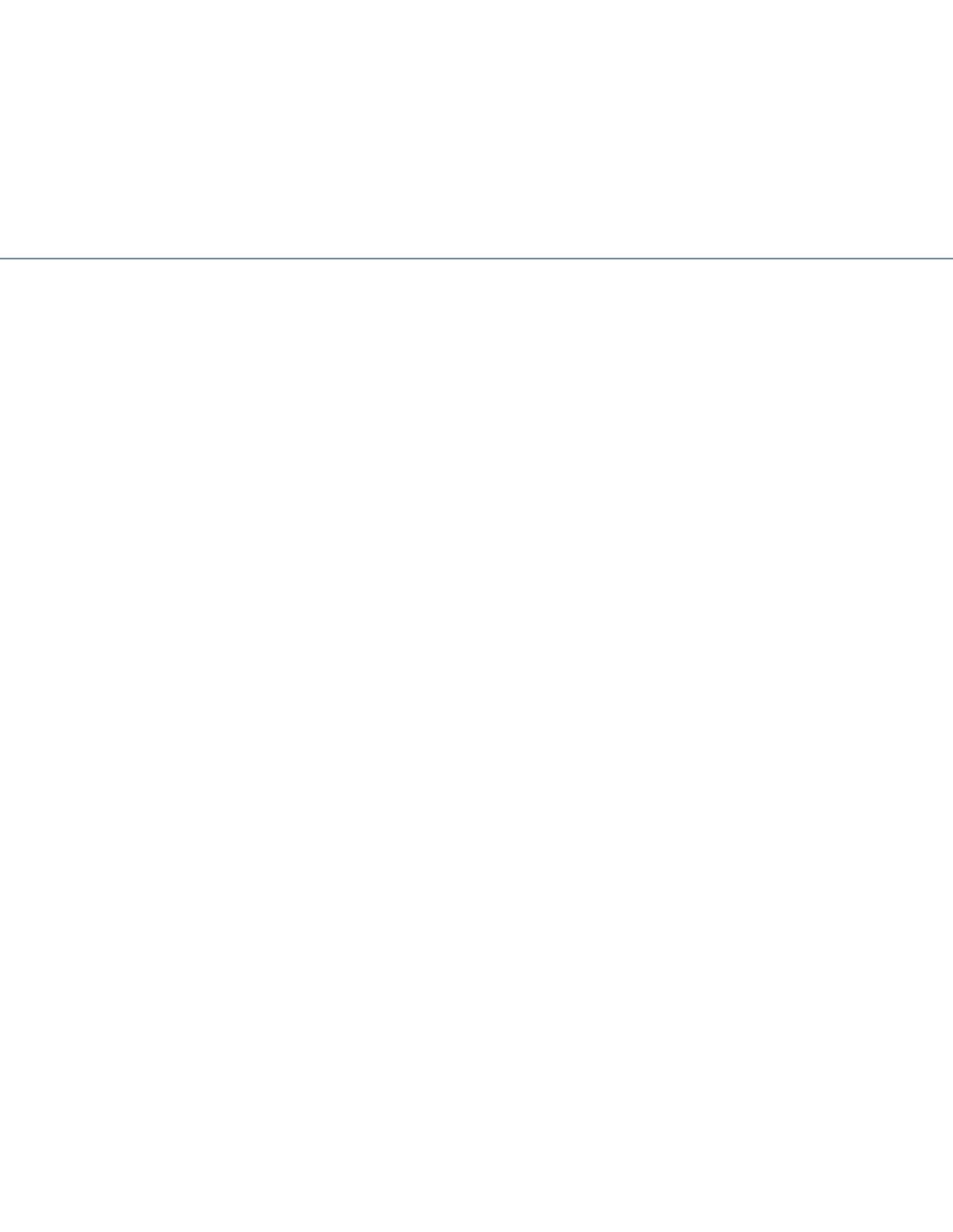
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# Key

 <b>1:1</b>	Single-phase input and output		UPS with “cULus listed” certificate for North America
 <b>3:3</b>	Three-phase input and output		UPS with “TUV Rheinland” certificate for North America
	UPS ON LINE (Voltage Frequency Independent)		UPS with certificate of compliance “Seismic Design of Nonstructural Components and Systems”
	Tower		UPS TAA Compliant
	Rack / Tower		HCAI certification for UPS Systems
	UPS suitable for Digital Living applications		Plug and play. The UPS can be installed without the need for qualified personnel
	UPS suitable for Data Center applications		Installation and initial start up must be carried out by qualified personnel
	UPS suitable for medical applications		The device has a USB port
	UPS suitable for industrial applications		UPS with GS Nemko certificate
	UPS suitable for transport applications (railways, airports, naval)		
	UPS suitable for emergency applications		



## AN INTRODUCTION TO RIELLO UPS AMERICA

RPS America Inc., as a member of the Riello Elettronica Group, contributes to the success of the fifth-largest manufacturer of Uninterruptible Power Supplies (UPS) globally. With a rich heritage of over 35 years in power conversion, the Riello Elettronica Group, operating under its flagship brand Riello UPS, delivers innovative, energy-efficient, scalable, and reliable power protection solutions. These solutions cater to various critical sectors, including Data Centers, Medical and Healthcare applications, Emergency Lighting, Industrial Facilities, Telecommunication, Offices and Smart Home, ensuring reliable and high-quality energy supply.

**The foundation of RPS America Inc.'s excellence lies in its unwavering commitment to quality, resource optimization, technological innovation, and extensive experience. These values, coupled with utmost professionalism, consistency, and a customer-centric approach, enable RPS America Inc. to effectively meet the evolving demands of a rapidly growing market.**

## Here's why we are at the forefront in mission-critical applications:

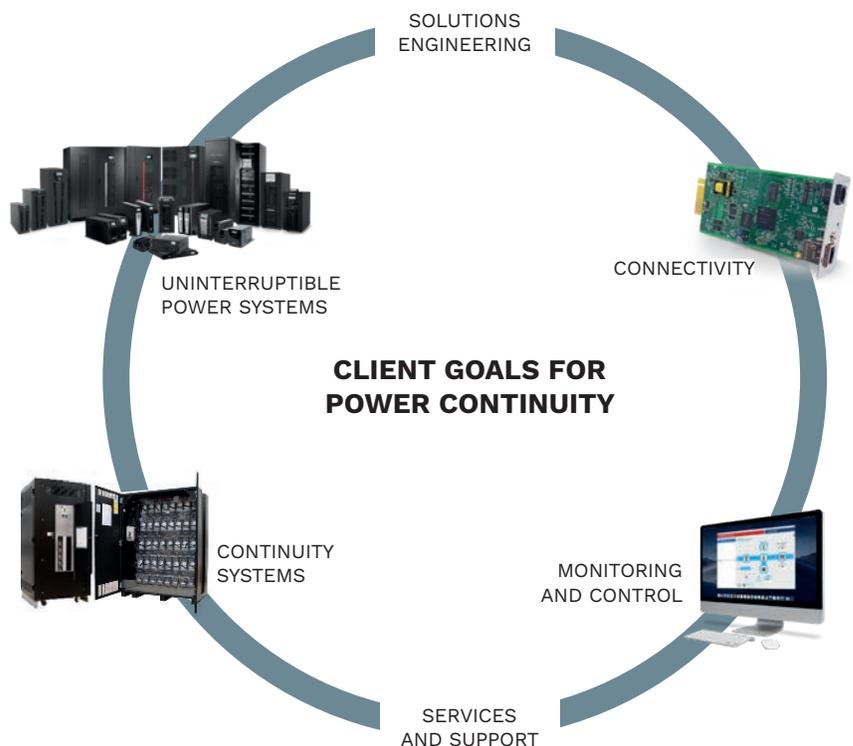
- Over 35 years of invaluable experience (Est. 1986) in providing and servicing power quality systems for mission-critical applications;
- Extensive coverage for field services, ensuring prompt support and maintenance;
- Trusted by key global accounts for ensuring uninterrupted power continuity and support;
- Excellence on research and development, driving innovative engineering of advanced power supply systems;
- A well-established worldwide distribution network for seamless product availability;
- Recognized with Awards for engineering and designing.



## Products and solutions overview

At Riello UPS the approach to the market revolves around putting the customer first. We strongly believe in understanding our customers' goals and priorities when it comes to power continuity. By gaining deep insights into their unique requirements, we can then tailor the best possible solution to meet their specific needs.

**Our customer-centric vision ensures that we go beyond simply providing products and services, because we strive to create solutions that truly address the customer's requirements.**





## **PRESALES:** **expertise at your disposal for every needs**

Our Presales experts have been working in the power sector for years. They come from a range of backgrounds and enjoy a wealth of technical experience in sectors such as Data Centers, Industry and Power Plants.

By adopting a consultative, honest approach, our engineers and technicians support customers to achieve the perfect outcomes in power quality and power protection for their business.

### **Consultancy on standards**

Our technicians provides professional support to help customers comply with all necessary regulations (UNI, ISO or UL CSA standards), and related requirements, including the issues of energy management and safety protection.

### **Presales support for:**

- UPS sizing;
- Installation and configuration requirements;
- Customized solutions with a “pay as you grow” approach;
- Tailored systems providing optimal CapEx and OpEx;
- Technical specifications;

### **Presales Help Desk**

Presales support is available by phone or email.

## **MAINTENANCE AND TECHNICAL SERVICE:** **guaranteeing the performance and quality of our products over time**

By adopting a highly professional approach, our engineers and technicians provide reliable and qualified technical support that enables our customers to promptly solve any problem that may occur to their power protection systems.

In addition, the Service Team’s ability to analyze data from the UPS encourages preventive, predictive or corrective maintenance. In this way, any necessary interventions can be scheduled cyclically, minimising the likelihood of a fault and enabling prompt intervention in the event of sudden problems or unexpected anomalies.

From electrical installation and commissioning to ongoing maintenance and product training, our Service Team is constantly committed to achieving the target of zero downtime of the installed Riello UPS power continuity solutions and lead the customers into the future of the real-time energy management.



## RELYING ON THE RIELLO UPS SERVICE MEANS:

### EXPERIENCE

extensive knowledge of the product and its use in every application, made possible by an ongoing process of training our technicians and keeping them constantly up-to-date with the latest trends.

### EXPERTISE

constant communication between the Service and Research and Development teams enables a continuous exchange of information and technical knowhow.

### PRESENCE

Riello UPS ensures a widespread coverage of its Service structure throughout each national territory. It deploys a network of professional and expert Help-Desk operators to provide immediate responses to customers. This is complemented by a group of highly-trained and competent technicians and service engineers that can quickly be deployed for on-site interventions.

### SPEED

faults and failures can be quickly repaired thanks to a broad network of service engineers in each territory, plus the immediate availability of spare parts stored across various strategically-placed locations.

### CONTROL

performance and efficiency can be precisely optimised thanks to ongoing on-site maintenance or through the Riello Connect remote monitoring platform.

### COVERAGE

Riello UPS enjoys a growing presence throughout the world thanks to its local branches and distributors who work together in mutual cooperation to meet the customers' needs.

### Our Service Team also provides UPS Training.

For more information contact us to [info@rielloupsamerica.com](mailto:info@rielloupsamerica.com)



## WE PROVIDE RELIABLE ENERGY THROUGHOUT THE WORLD.

### Area Digital Living UPS (Small Office/Home Office)

Consp (Italy)  
Carrefour (Italy)  
Ikea (Sweden)  
Hilton Hotel (Germany)  
Mc Donald's (Germany)  
Royal Intern. (U.A.E.)  
Intermarché (Portugal)  
Carrefour (France)  
Lonely Planet (Australia)  
Tesco (UK)

### Area Data Center

German Government (Germany)  
Deutsche Bank (Germany)  
Allianz (Germany)  
Samsung India Electronics (India)  
Telecom Italia (Italy)  
ENI (Italy)  
Enel (Italy)  
Globalswitch (Spain)  
Telefonica (Spain)  
Infinity (UK)  
British Telecom (UK)

### Area Medical

Country Hospital Graz (Austria)  
Krankenhaus (LKH) Salisburgo (Austria)  
Clinique De La Sauvegarde, Lyon (France)  
Tropical Medicine Centre, Marseilles (France)  
Civil Hospital, Lyon (France)  
Klinikum Süd Nürnberg (Germany)  
Universitätsklinikum Aachen (Germany)  
Ospedale le Molinette, Turin (Italy)  
Ospedale Cardarelli, Naples (Italy)  
E-HWA University Hospital, Seoul (Korea)  
Apollo Hospital, Colombo (Sri Lanka)

### Area Industry

Mannesmann (Germany)  
Audi (Germany)  
Adidas (Germany)  
HT Media (India)  
Benetton Treviso (Italy)  
Ilva (Italy)  
La Doria (Italy)  
Fincantieri (Italy)  
Repsol (Spain)  
Global Suit (Spain)  
Ericsson (Sweden)  
Ece (Russia)  
Phillips (UK)

### Area Transport

Munich airport (Germany)  
Hamburg railway station (Germany)  
Underground Railway line C, Rome (Italy)  
Underground Railway, Turin (Italy)  
Barajas Madrid Airport (Spain)  
High Speed Train A.V.E. (Spain)  
CDG airport Paris (France)  
Underground Railway, Paris (France)  
Johannesburgh International Airport (South Africa)  
Dubai Underground Railway (U.A.E.)  
Etihad Airway (U.A.E.)  
Mumbai Metro (India)

### Area Emergency Lighting

Juventus Stadium (Italy)  
Malpensa Airport (Italy)  
Allianz Arena Stadium (Germany)  
Ellispark Stadium (South Africa)  
Loftus Stadium (South Africa)  
Barcelona Olympic Stadium (Spain)  
Slavia Stadium Prague (Czech Republic)

*We are present in the USA with many references in the main strategic sectors such as; Healthcare, Data Center, Telecom, Industry and Government.*

*For more information and details please contact us.*



# 100%

**GUARANTEED PRESALES  
QUALITY**

Riello UPS America is constantly committed to providing high quality products and services to ensure that the customers get the best performance from their UPS, ensuring high availability and maximizing total cost of ownership.

Production quality is an integral part of Riello UPS America's corporate philosophy and begins with the customer's order, continuing throughout the production chain, right up to delivery to the customer.

During the whole process the level of attention to quality is fundamental: in addition, each UPS is individually tested before leaving the factory with a 100% electrical test.

Factory acceptance tests (FATs) are also a fundamental service for Riello UPS America. Standard FATs, special FATs are made in the company at the request of customers.





## AFTER SALES KEY FACTORS



### SPARE PARTS

Fast shipping, thanks to the immediate availability of spare parts at the central warehouse.



### ASSISTANCE AND MAINTENANCE

Not only scheduled maintenance, but also periodic verification of the general state of the UPS and optimization of interventions.



### COMPETENCE AND TRAINING

The technical skills of our specialized technicians reach our customers throughout North America.

## SPARE PARTS: a local presence, quality and efficiency

To supply spare parts quickly, Riello UPS America has a well-stocked local warehouse and has developed a punctual and precise maintenance procedure. The Spare Parts Office manages customer requests and, in collaboration with the Assistance Office, shares and plans maintenance: this is to anticipate and manage interventions according to MTBF cycles. All spare parts are made with high quality materials and are checked before shipment. Thanks to the warehouse located at the headquarters, adequately supplied and managed, most of the spare parts are easily available and ready for shipment in a short time.

## ASSISTANCE AND MAINTENANCE: always by the customer's side

Riello UPS America's specialized staff provides telephone and remote support to customers, covering every type of immediate need. To save time and money, you can formalize a global service agreement that guarantees support and scheduled maintenance in one package.

## SKILLS AND STAFF TRAINING

During installation and testing or upon request, Riello UPS America provides on-site training for operating personnel for correct, simple and safe use of the UPSs installed. Our specialized staff illustrates the functionalities of the UPS to the operating staff at the customer or at the Riello UPS America headquarters, to transmit information and instructions relating to the commissioning and maintenance activities.



## THE SIGNIFICANCE OF UPS TRAINING WITH RIELLO UPS AMERICA FOR SYSTEM INTEGRATORS AND SERVICE PARTNERS

The global shift towards digital solutions has brought about an increased dependence on uninterrupted power sources. As businesses heavily rely on electronic systems, the importance of power continuity becomes undeniable. However, the mere installation of a UPS system is just the beginning. The heart of effective UPS system management lies in understanding, maintenance, and optimization. This is where comprehensive training programs, especially from renowned manufacturers like Riello UPS America, become indispensable.

### DEEPENING KNOWLEDGE ABOUT MAINTENANCE

For system integrators and service partners, maintenance isn't just a routine activity; it's a linchpin for ensuring the seamless operation of multiple interconnected systems. Riello UPS America's training program offers an in-depth understanding of the maintenance intricacies of their product portfolio. By ensuring regular and rigorous maintenance, our partners can guarantee the longevity and efficiency of the UPS systems they install or manage. Moreover, with the growing complexity of modern UPS systems, maintenance now spans both hardware and software components. By attending Riello UPS America's training, system integrators and service partners can familiarize themselves with the advanced software tools crucial for monitoring system performance, preemptively identifying potential issues, and ensuring seamless integration with various platforms.

### TAILORED TRAINING FOR SYSTEM INTEGRATORS AND SERVICE PARTNERS

The value of a specialized training program cannot be overstated. Riello UPS America, understanding the unique needs of system integrators and service partners, offers tailored programs to ensure the skills imparted are directly applicable to their work scenarios.

## BENEFITS OF TRAINING FOR SYSTEM INTEGRATORS AND SERVICE PARTNERS

- **Competitive edge:** with the UPS market becoming increasingly saturated, having a certified training program under one's belt can provide system integrators and service partners with a competitive advantage. It signifies their commitment to quality and their expertise in handling premium products.
- **Enhanced Client trust:** clients, knowing their service providers have undergone rigorous training, are more likely to trust their expertise. This trust can translate to better business relationships and potential referrals.
- **Optimized system integration:** with proper training, system integrators can ensure that the UPS systems they install work seamlessly with other interconnected systems, offering clients an optimized and efficient power solution.
- **Efficient problem diagnosis and resolution:** service partners equipped with the knowledge from Riello UPS America's training can quickly diagnose issues and implement solutions, reducing system downtime and ensuring businesses operate without interruption.
- **Continual learning and adaptation:** the world of UPS is continually evolving. By attending regular training programs, system integrators and service partners ensure they remain updated with the latest developments, tools, and best practices in the industry.



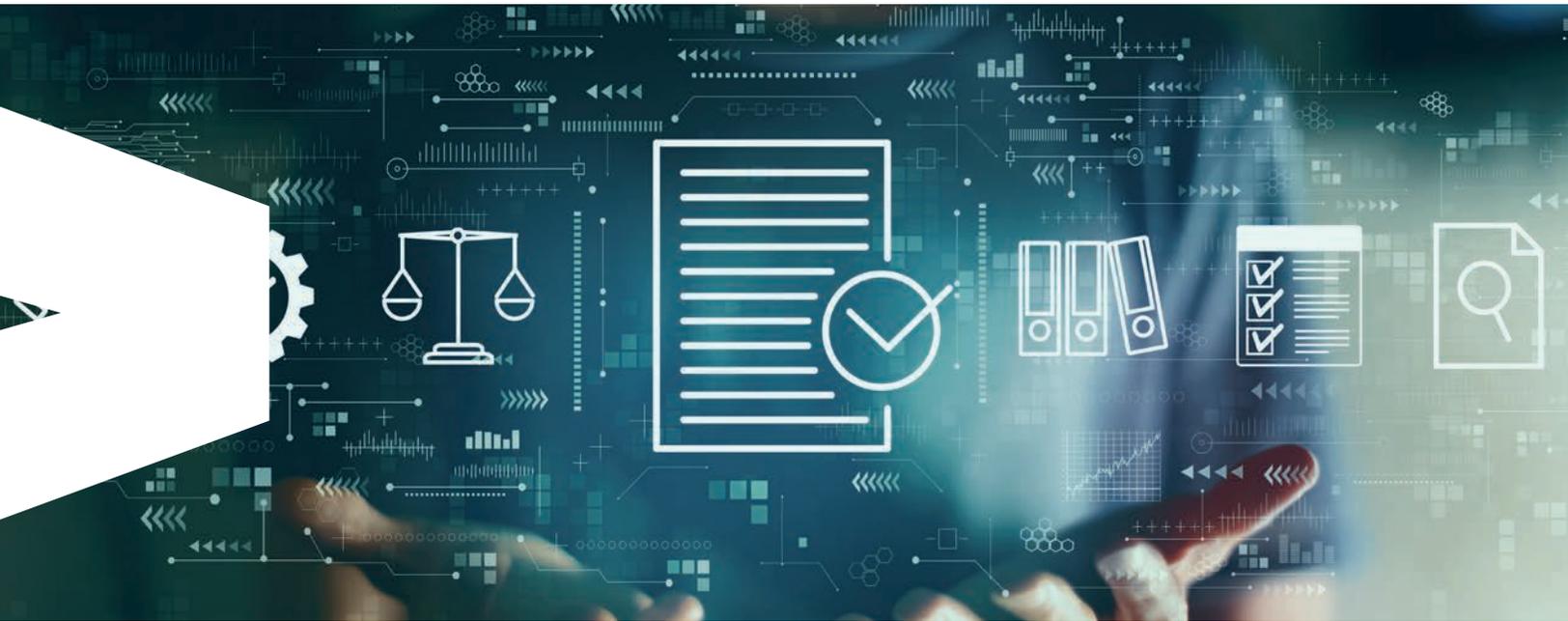
## ETHICAL AFTERMATHS OF STAFF TRAINING

- **Skills development and diversification:** training equips the staff with the necessary skills to operate electrical equipment efficiently. It not only familiarizes them with the equipment but also imparts the technical know-how to handle various scenarios.
- **Improved productivity:** proper training translates to increased competence in handling UPS systems. This results in optimized operations and reduced downtime, ensuring business processes are not interrupted.
- **Enhanced staff morale:** when employees feel invested in, they are more motivated and committed. Training gives them the confidence to handle tasks independently and the assurance that the organization values their growth.
- **Reduced staff turnover:** a well-trained employee is less likely to make errors that can lead to accidents or equipment damage. This reduces can reduce staff attrition, as employees see a growth path within the organization.

In conclusion, while having a UPS system is an essential step towards ensuring power continuity, proper training on its operation and maintenance is what guarantees its efficiency.

**For system integrators and service partners, attending training programs by reputable manufacturers like Riello UPS America isn't just beneficial – it's essential. It not only equips them with the skills and knowledge to offer superior service but also positions them as trusted experts in the field. In the competitive landscape of UPS solutions, such training can be the differentiator that propels their business to greater heights.**





## TAA COMPLIANT

Majority of the Riello UPS' product portfolio is TAA Compliant. The Trade Agreements Act (19 U.S.C. § 2501–2581) fosters fair international trade, requiring products to be produced or substantially transformed in the United States or designated countries. Designated countries include those with trade agreements or participation in international procurement agreements. Notably, major electronics manufacturing centers like China are not designated countries, posing challenges for sourcing TAA-compliant IT equipment.

TAA compliance is mandatory in federal procurement contracts, including GSA (General Services Administration) Schedule contracts, IDIQ (Indefinite Delivery, Indefinite Quantity) contracts and most DOD (Department of Defense) contracts. While TAA requirements typically apply above a certain dollar threshold, compliance is necessary regardless of cost for products offered under GSA Schedule contracts.

Strict TAA enforcement has resulted in suspension or exclusion from federal contracting for violators. Whistleblower lawsuits and bid protests filed by competitors can also lead to penalties, settlements, and negative publicity. Non-compliant companies invite further scrutiny, risking larger problems and costly governmental investigations. Understanding TAA and providing certification of compliance becomes essential to meet contractors' requirements and mitigate potential damages arising from non-compliance. Thereof, sourcing products from reputable manufacturers with detailed product knowledge and supply chain control is cost-effective and reliable. In conclusion, supplying products for government contracts requires compliance with the federal Trade Agreements Act (TAA), ensuring products originate from

the United States or approved countries. Understanding TAA requirements, sourcing TAA-compliant products, and working with reputable manufacturers mitigate the risks of bid cancellations, fines, and exclusion from federal contracting. Compliance safeguards market access, builds trust, and reinforces long-term business relationships in the government sector.



**TAA**  
Compliant

## HCAI CERTIFICATION FOR UPS SYSTEMS

### The Importance of HCAI certification for UPS Systems in Healthcare Facilities

Uninterruptible Power Supply (UPS) systems play a crucial role in ensuring that healthcare facilities maintain continuous power, even in case of emergencies or natural events. Within the state of California, a special certification called the HCAI Preapproval stands as a benchmark for the highest safety and operational standards for these systems.

The Riello UPS Master UL range 65-250 kVA received the HCAI Preapproval of Manufacturer's Certification (OPM) document number OSP-0529. This certification focuses on the seismic design of supports and attachments for nonstructural components, ensuring their stability during earthquakes.

### Understanding the HCAI Certification:

The OSHPD Special Seismic Certification Preapproval (OSP) is a voluntary program in California that reviews nonstructural components in healthcare construction for special seismic certification.

Previously known as OSHPD, the HCAI was established after the 1971 Sylmar

earthquake which caused multiple hospital collapses. Consequently, the Alfred E. Alquist Hospital Seismic Safety Act was passed in 1973, mandating stringent safety standards under HCAI to ensure:

- Protection for patients during earthquakes.
- Continuous healthcare service post-seismic events.

### Why is HCAI Preapproval Significant for UPS Systems?

While HCAI is a certification tailored for California, its influence has expanded beyond the state's borders. Western states, including Utah, Oregon, Washington, Arizona, and Nevada, are increasingly aligning with HCAI's seismic requirements. Furthermore, HCAI Preapprovals align with the Japan Acceptance Criteria AC-156, which sets the global standard for earthquake resistance, developed by the International Code Council.

**Therefore, investing in a UPS system with HCAI Preapproval ensures not only the best-in-class safety but also compliance with a growing range of seismic standards, both domestic and international. Especially for healthcare facilities where patient safety and continuous care are paramount, this certification represents an uncompromised commitment to excellence.**



## THE HUMAN FACTOR, ADDED VALUE

The concepts of product quality and excellence are central to Riello UPS' corporate philosophy, but this is complemented with a further concept: the value of people, whether they are customers, users or colleagues. At every staff level in Riello UPS, the sense of belonging to the company and respect for others creates an excellent working environment, which is instrumental in achieving consistently exceptional results. The teamwork that leads everyone to give their best every day, collaborating with colleagues to achieve challenging objectives is the result of the careful selection, management and training of staff and above all due to a healthy attitude of sharing targets at all levels and an ethical belief in added value.

One of the secrets of Riello UPS' success is the reciprocal respect for each person's

contributions and the collective effort to ensure the best levels of service and customer satisfaction. The countless awards we receive are proof of this, such as the accolade from Frost & Sullivan.





# **riello ups**

Riello Elettronica, an Italian enterprise led by Pierantonio Riello, is the holding company of a group of businesses operating in the industrial world across three divisions: energy, automation and security. As world recognised brand in power continuity, world leader in the market of static UPS and excellence of the 'Made in Italy', Riello UPS designs and manufactures intelligent electronic equipment that acts as an energy reserve in the event of a grid blackout or disruption. Riello UPS offers a complete range of single-phase and three-phase UPS from 400 VA to 6.4 MVA and provides advanced UPS systems both modular and monolithic, transformer-free or transformer-based, for any type of power applications for Data Centers, offices, healthcare, emergency, safety and security facilities, industrial complexes and telecommunication systems.

In addition, Riello UPS often provides tailored solutions in the event of large tenders or commissions. These solutions are based on the specifications provided, demonstrating the company's attention to customer needs.

Riello UPS operates two research centers of excellence, in Legnago (Verona) and Cormano (Milan), dedicated to the development, design and testing of UPSs.

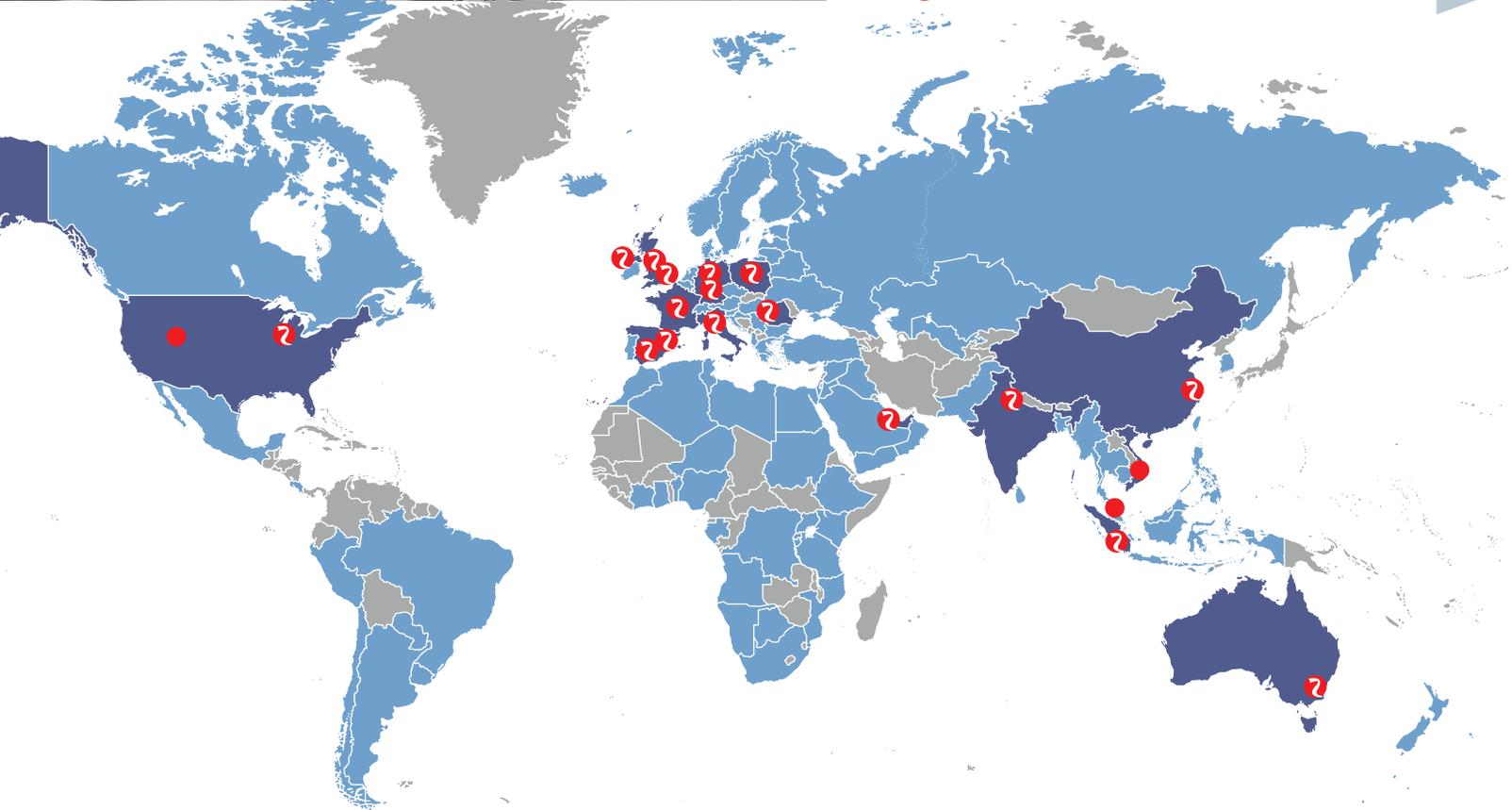
This allows us to continuously innovate our product portfolio, maintaining the highest levels of performance, reliability and competitiveness.

In fact, Riello UPS has always maximised product performance and constantly evolves its offer, which today incorporates **24 product lines** for energy management based on multiple technological architectures.





- Subsidiaries
- Distributors
- ? Riello UPS companies
- Rep. Offices



**GLOBAL PLAYER**

Riello UPS is a leader in Italy and proudly hold a prominent position among the top 5 global companies in the power continuity industry. Our extensive presence spans across 17 dedicated branches and a vast network of distributors, enabling us to serve customers in over 85 countries worldwide. By leveraging our global reach, we bring outstanding services and solutions directly to local customers. Whether it's in Europe, the United States, the United Arab Emirates, China, India, Singapore, Vietnam, Australia, or beyond, our commitment to delivering excellence remains steady.

**1000**  
EMPLOYEES

**85**  
BUSINESS COUNTRIES

**17**  
COMPANIES

**3**  
PRODUCTION SITES



# Riello UPS

## Brand Values

### INNOVATION

#### the secret of an all-Italian success story

By manufacturing UPS systems in Italy, Riello UPS maintains direct control over quality, reliability, and the entire manufacturing, sales, and after-sales service processes. This customer-centric approach fosters continuous improvement through diligent feedback monitoring, allowing swift adjustments to optimize product features according to market demands.

Furthermore, Riello UPS's commitment to innovation and quality is exemplified by groundbreaking UPS solutions like Modular UPS and Smart Grid Ready UPS. These forward-thinking solutions, designed to cope with intelligent power distribution grids representing the future of energy supply, demonstrate Riello UPS's dedication to staying at the forefront of technological advancements. Such endeavors further

strengthen the company's reputation as a reliable, dynamic, and quality-oriented organization.

In summary, Riello UPS's success lies in its unwavering focus on customer needs, continuous innovation, and stringent quality control, which drive its ongoing growth and position as a global player in the UPS industry.



# Reliable power for a sustainable world

## Energy and sustainability in one hand

**“Reliable power for a sustainable world” is the Riello UPS philosophy condensed into few simple words; a global brand constantly searching for the most innovative solutions that ensure a dual safety: a solid critical-load protection that also keeps the protection and sustainability of Planet Earth at the forefront of our minds.**

Riello UPS manufactures efficient solutions that ensure power quality and business continuity. The company constantly implements new ideas and technologies to increase the efficiency of its products and reduce their power consumption and environmental impact. To this end, the company also invests significantly in new technologies that harvest clean and renewable energy

sources. Riello UPS' social commitment aims to help the present as well as shape a bright, sustainable future, combining the inevitable need for energy with environmental protection:

- Among the most difficult UPS challenges, reducing energy costs without compromising the devices' efficiency is at the forefront. The entire Riello UPS product portfolio is fully compliant with the new Code of Conduct (CoC) for the energy efficiency of UPS (2021-2023), published by CEMEP and agreed with the Joint Research Center of the European Commission. Compared to standard UPS, Riello's solutions are more efficient, with energy saving that allows a fast return on investment and a significant **reduction in carbon dioxide emissions' therefore**

### **helping the atmosphere.**

- Riello UPS pays close attention to the use of low environmental impact materials from the initial design and development stage through to the final release of its products into the market.
- Riello UPS employs an environmental management system that is ISO 14001 certified.
- Huge attention is given to the evolution of the electric grid, in particular to the use of renewable energy sources: the Riello UPS offer incorporates not only traditional and Smart Grid Ready UPS, but also photovoltaic inverters and energy storage systems.

RIELLO ELETTRONICA

**riello ups**



# DUCATI CORSE WORLD CH

High performance, Unlimited  
These are the values



**Riello UPS is the main sponsor of the Aruba.it Racing - Ducati Team.**

The collaboration best represents the Riello UPS philosophy, which in partnership with Aruba.it and Ducati, produces a close-knit and productive team that achieves goals and results of absolute excellence.

Main Sponsor



# PERFECT SYNERGY

RIELLO UPS AND DUCATI TOGETHER SINCE 2007

# CHAMPIONS

energy, Italian technology. we share with Ducati.



Official Sponsor

**Riello UPS is the official sponsor of the Ducati Corse MotoGP Team.** Our partnership with Ducati provides Riello UPS with high levels of visibility and worldwide prestige. The two companies share values and principles that unite them in perfect synergy.

# Options and accessories compatibility table

Easily identify the UPS that supports the software and accessories your installation requires.

UPS	Software		Specifications									
	POWERSHIELD <sup>3</sup> Shutdown software	POWERNETGUARD Inventory manager software	120 V 1/1	Input 208/240 V 1/1	208/240 V 2/2	208 V 3/3	480 V 3/3	Internal manual bypass	Internal battery	Parallelable	Transformer-free	Transformer based
SENTINEL PRO	●	●		●								
SENTINEL RT 1-3 kVA	●	●	●						●		●	
SENTINEL RT 6-10 kVA	●	●			●			opt			●	
GUARD TOWER	●	●			●			●	●			●
SENTRYUM S3U	●	●				●		Ⓐ	Ⓒ	●	●	
MASTER HP UL	●	●					●	Ⓒ		●		●
MASTER HP FC UL	●	●					Ⓑ			●		●



## Key

- (A) S3U SW
- (B) 480 V - 60 Hz/400 V - 50 Hz
- (C) depending on the version
- std** standard
- opt** optional

Ports					Accessories						info
USB	RS232	Contacts	Slot	EPO	NETMAN 104 Card - Ethernet -SNMP v1,v3	NETMAN 204 Card - Ethernet -SNMP v1,v3	MULTICOM 184 Contacts - RSD board	MULTICOM 384 Card - Relay I/O Interface	MULTICOM 392 Card - relay 3 In/8 Out	I/O RELAY CARD Expansion board	UPS page
●	●					●		●			<b>24</b>
●	●	-	1	●	●		●				<b>28</b>
●	●	-	1	●	●		●				<b>32</b>
●	●	-	1	●	●		●				<b>36</b>
●	●	std	2	●		●		●	(C)		<b>40</b>
	●	std	2	●		●				●	<b>46</b>
	●	std	2	●		●				●	<b>50</b>







**UPS for  
North America  
(UL/CSA standards)**

# Sentinel Pro



**1:1** 700-3000 VA

## True-ON LINE UPS System

Input 208-240 V 60 Hz  
Output 220/240 V 60 Hz



## HIGHLIGHTS

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

Sentinel Pro has a unique, modern design and improved performance created by the Riello UPS research and development team. Sentinel Pro uses ON LINE double conversion technology, resulting in the highest levels of reliability and maximum protection for critical loads such as servers, and IT and voice/data applications. For business continuity applications requiring long battery runtimes, battery autonomy can be extended up to several hours using ER models fitted with more powerful battery chargers. The front display panel has been entirely redesigned, adding an LCD display that shows the input and output voltages, battery readings and UPS operating status information. The inverter and the microprocessor control stage has been completely redesigned to provide increased

efficiency and greater configuration options. Maximum expandability: the Sentinel Pro is supplied as standard with a USB port and an expansion slot for protocol conversion or relay contacts boards.

With energy savings in mind, Sentinel Pro is also fitted with a shut-off button to reduce energy consumption to zero during prolonged periods of inactivity (ECO LINE). Sentinel Pro is available in 700 VA, 1000 VA, 1500 VA, 2200 VA and 3000 VA models.

### OPERATING FLEXIBILITY

Different operating modes are available to reduce energy consumption based on specific load and user requirements.

- ON LINE: maximum load protection and output voltage waveform quality;
- ECO Mode: the UPS uses LINE INTERACTIVE technology, with the



load powered by the mains, reducing consumption and thus improving efficiency (up to 98%);

- SMART ACTIVE Mode: the UPS automatically selects ON LINE or LINE INTERACTIVE operation, depending on the quality of the mains supply, checking the number, frequency and type of disturbances present;
- STANDBY OFF: the UPS supplies the load only when the mains fails. The inverter begins working with a progressive start up sequence to prevent inrush currents.
- Frequency converter operation (50 or 60 Hz).

#### EMERGENCY FUNCTION

This configuration ensures the operation of emergency systems that must be supplied in the event of a mains power failure, such as emergency lighting, fire detection/ extinguishing systems and alarms.

When the mains power supply fails, the inverter begins powering the loads with a progressive start up (Soft Start) in order to prevent overload.

Sentinel Pro is compliant for installation in medium-voltage transformer rooms in accordance with applicable legislation, for the power supply with reserve charge of medium-voltage coils.

#### BATTERY OPTIMISATION

The Sentinel Pro range has a deep discharge protection device to optimise battery life. Periodically the UPS carries out a battery efficiency test (which can also be manually activated); its wide input voltage tolerance range helps to reduce battery usage and maintain performance over time.

#### RUNTIME EXPANDABILITY

Optional battery extension packs can be connected to increase UPS runtime. In addition the Sentinel Pro range includes ER versions with no internal batteries and more powerful battery chargers for longer runtimes.

#### LOW NOISE LEVEL

Thanks to the use of high frequency components and load-based fan speed control, the noise produced by the UPS is less than 40 dBA.

#### FEATURES

- Filtered, stabilised and reliable voltage: double conversion ON LINE technology (VFI compliant with IEC 62040-3) with

filters for the suppression of atmospheric disturbances;

- High overload capability (up to 150%)
- Programmable Auto-restart when mains is restored;
- Battery start up (Cold Start);
- Power factor correction (UPS input power factor, close to 1);
- Wide input voltage tolerance range (from 140 V to 276 V) without battery intervention;
- Runtime extendable up to several hours;
- Fully configurable using UPS Tools configuration software;
- Highly reliable batteries (automatic and manually-activated battery test);
- High level of UPS reliability (total microprocessor control);
- Low impact on the mains (sinusoidal take up).

#### ADVANCED COMMUNICATIONS

- Multi-platform communication for all operating systems and network environments: PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
- UPS Tools configuration and customisation software supplied as standard;
- RS232 serial port and opto-isolated contacts;
- USB port;
- Slot for communications boards.

#### 2-YEAR WARRANTY



## OPTIONS

### SOFTWARE

PowerShield<sup>3</sup>

PowerNetGuard

### ACCESSORIES

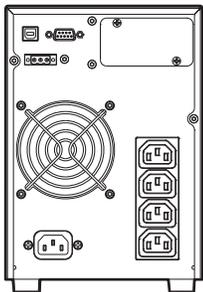
NETMAN 204

MULTICOM 384

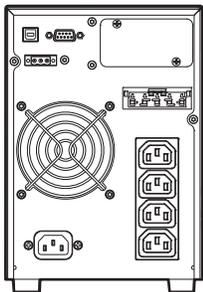
MULTIPANEL

## DETAILS

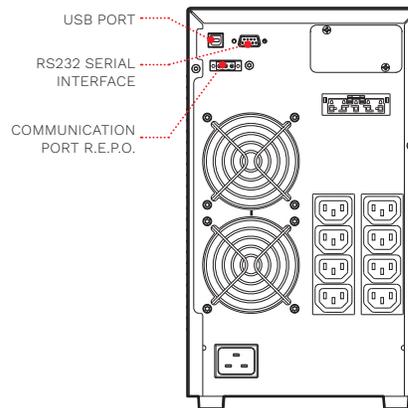
**SEP 700**  
**SEP 1500**



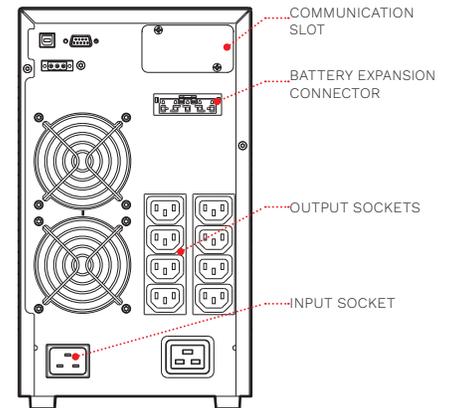
**SEP 1000**  
**SEP 1000 ER**



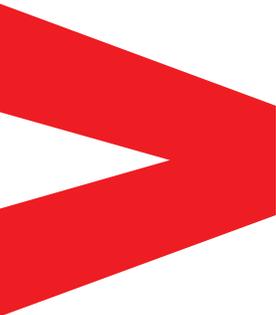
**SEP 2200**  
**SEP 2200 ER**



**SEP 3000**  
**SEP 3000 ER**



<b>MODELS</b>	<b>SEP 700</b>	<b>SEP 1000</b>	<b>SEP 1000 ER</b>	<b>SEP 1500</b>	<b>SEP 2200</b>	<b>SEP 2200 ER</b>	<b>SEP 3000</b>	<b>SEP 3000 ER</b>
<b>POWER</b>	<b>700 VA/630 W</b>	<b>1000 VA/900 W</b>	<b>1500 VA/1350 W</b>	<b>2200 VA/1980 W</b>	<b>2200 VA/1980 W</b>	<b>2200 VA/1980 W</b>	<b>3000 VA/2700 W</b>	<b>3000 VA/2700 W</b>
<b>INPUT</b>								
Rated voltage [V]	220 / 230 / 240							
Voltage range without battery intervention [V]	140 <Vin <276 @ 50% load / 184 <Vin <276 @ 100% load							
Voltage tolerance [V]	230 ±20%							
Maximum permitted voltage [V]	300							
Rated frequency [Hz]	50 / 60							
Frequency tolerance [Hz]	50 ±5% / 60 ±5%							
Power factor	>0.99							
Current distortion	≤7%							
<b>BYPASS</b>								
Voltage tolerance [V]	180 / 264							
Frequency tolerance [Hz]	Frequency selected (from ±1.5 to ±5 configurable)							
Overload times	125% for 5 s, 150% for 1 s							
<b>OUTPUT</b>								
Voltage distortion with linear load / with non-linear load	<2% / <4%							
Frequency [Hz]	Selectable: 50 or 60 or self-learning							
Static variation	±1%							
Dynamic variation	≤5% in 20 ms							
Waveform	Sinusoidal							
Current crest factor	3:1							
Efficiency ECO and SMART ACTIVE Modes	98%							
<b>BATTERIES</b>								
Type	VRLA AGM maintenance-free lead based; Supercaps							
Recharge time	2-4 h	N.A.	2-4 h	N.A.	2-4 h	N.A.	2-4 h	N.A.
<b>OVERALL SPECIFICATIONS</b>								
Net weight [lbs/kg]	24 / 10.9	29.3 / 13.3	15.4 / 7	32.6 / 14.8	56.4 / 25.6	30.8 / 14	61.7 / 28	33 / 15
Gross weight [lbs/kg]	27.5 / 12.5	32.8 / 14.9	18.9 / 8.6	34.1 / 15.5	63.4 / 28.8	37.4 / 17	68.7 / 31.2	39.6 / 18
Dimensions (WxDxH) [inches/mm]	62.2x166x92.5 / 158x422x235				74.8x175.5x131.1 / 190x446x333			
Packaging dimensions (WxDxH) [inches/mm]	96.4x196.8x133.8 / 245x500x340				127.9x230.3x185 / 325x585x470			
Protection against overvoltage [J]	300							
Protections	Overcurrent - short circuit - overvoltage - undervoltage - temperature - excessive low battery							
Communications	USB / DB9 with RS232 and contacts / Slot for communications interface							
Input plugs	1x IEC 320 C14 (10 A)				1x IEC 320 C20 (16 A)			
Output sockets	4x IEC 320 C13 (10 A)				8x IEC 320 C13 (10 A)		8x IEC 320 C13 (10 A) + 1x IEC 320 C19 (16 A)	
Standards	European directives: LV 2014/35/EU low voltage Directive EMC 2014/30/EU electromagnetic compatibility Directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2; RoHS compliant Classification in accordance with IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111 UL 1778:2014 and CSA C22.2 No. 107.3-14							
Ambient temperature for the UPS	32 – 104 °F / 0 – 40 °C							
Recommended temperature for battery life	68 – 77 °F / +20 °C – +25 °C							
Range of relative humidity	5-95% non-condensing							
Colour	RAL 9005							
Noise level (ECO Mode) [dBA]	<40 at 3.3 ft / 1 m							
Standard equipment provided	Power cable, IEC-IEC cable, USB cable, safety manual, quick start guide							



# Sentinel RT

1-3 kVA/kW



ONLINE



Tower/Rack



Plug & Play installation



USB plug



TAA Compliant\*



1:1 1-3 kVA/kW

## True-ON LINE Rack/Tower UPS System

Input 100-127 V 60 Hz  
Output 100/110/115/120/127 V 60 Hz

### HIGHLIGHTS

- **Power factor 1 kW = kVA**
- **Simplified installation**
- **High quality output voltage**
- **High battery reliability**

Sentinel RT is designed to power critical loads such as servers, storage systems, telephone equipment, medical systems and industrial applications.

The UPS is ideal for Blade servers with an input power factor close to Unity (1). The UPS can be used as tower UPS or within a rackmount cabinet, and takes up only 2U in height.

Sentinel RT has a modern design, choice of functional formats, and represents the state-of-the-art technology from the Riello UPS research & development team.

The UPS can achieve an ON LINE operating efficiency of 92%. For critical business continuity applications requiring long runtimes, Sentinel RT can be installed with battery extension packs.

The UPS also incorporates the Riello UPS

'power-off' function found in other ECO Line UPS. SENTINEL RT is designed to save energy when no loads are connected.

#### SIMPLIFIED INSTALLATION

Tower or Rackmount UPS: SENTINEL RT can be installed as tower or 19" rack mount UPS, with a front mimic panel that can be turned through 90° to suit the installation.

- Noise Free Operation (<40 dBA): the UPS can be installed in any environment thanks to its PWM digitally-controlled high frequency inverter;
- High Temperature Operation: UPS components are sized for high temperature operation up to 104 °F (40 °C) and are not therefore stressed during normal operational environments.

\*Subject to availability



## REDUCED MANAGEMENT COSTS

SENTINEL RT can be programmed remotely via software or set manually from the front mimic panel to operate in a range of energy saving operating modes:

- ON LINE: maximum power protection and output voltage waveform quality (efficiency up to 92%);
- ECO Mode: to increase efficiency (up to 98%), allows for the selection of LINE INTERACTIVE technology (VI) to power low priority loads from the mains supply;
- SMART ACTIVE: the UPS automatically decides upon the operating mode (VI or VFI) based on the quality of the mains power supply;
- STANDBY OFF: the operating mode in which the UPS functions as an emergency device. While power is present the UPS does not intervene. In the event of a blackout, the necessary power is provided by the UPS.

## HIGH QUALITY OUTPUT VOLTAGE

- Even with non-linear loads (IT loads with a crest factor of up to 3:1);
- High short circuit current on bypass;
- High overload capacity: 150% by inverter (even with mains failure);
- Filtered, stabilised and reliable voltage (TRUE-ON LINE double conversion technology), with filters for the suppression of atmospheric disturbances;
- Power factor correction: UPS input power factor close to 1 and sinusoidal current uptake.

## HIGH LEVELS OF BATTERY RELIABILITY

- Automatic and manual battery tests;
- Batteries are 'hot-swappable' and user replaceable.

## EMERGENCY FUNCTION

This configuration ensures the operation of those emergency systems that require continuous, reliable and long-lasting power supply in the event of a mains power failure, such as emergency lighting, fire detection/ extinguishing systems and alarms.

When the mains power supply fails, the inverter begins powering the loads with a progressive start up (Soft Start) in order to prevent overload.

## OTHER FEATURES

- Output voltage can be selected using display;
- Auto-restart when mains power returns (programmed via software);
- Standby on Bypass: when the machine is switched off, it automatically goes into bypass operation with batteries charging;
- Power-Off with zero load connected to save energy;
- Low battery warning;
- Power-on delay;
- Full microprocessor control;
- Automatic bypass without interruption;
- Status, measurements and alarms available on the front panel mimic panel and LCD;
- UPS firmware upgrade via PC;
- Input protection including a user reset thermal switch (up to 1500VA);
- Back-feed protection;
- Manual option to switch to bypass.

## ADVANCED COMMUNICATIONS

SENTINEL RT offers maximum flexibility for integrations with any communication system.

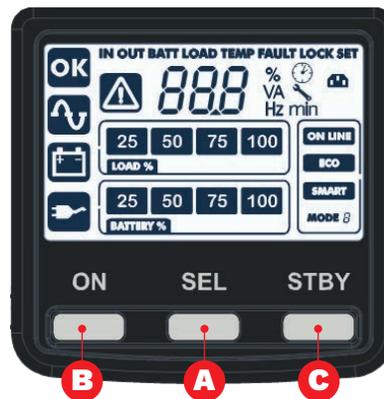
- Multi-platform communication for all operating systems and network environments: PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
- RS232 serial port and opto-isolated contacts;
- USB port;
- Slot for TCP/IP, SNMP communication card.

## UNITY POWER FACTOR\*

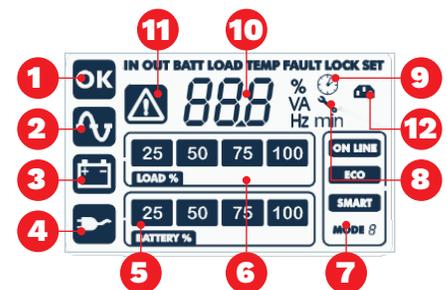
- More power delivered;
- More real output power (W).

## 2-YEAR WARRANTY

\* Conditions Apply



- A.** "SEL" Button
- B.** "ON" Button
- C.** "STANDBY" Button



- 1.** Regular operating mode
- 2.** Network operating mode
- 3.** Battery operating mode
- 4.** Load powered by bypass
- 5.** Battery charge level indicator
- 6.** Load level indicator
- 7.** Configuration area
- 8.** Maintenance required indicator
- 9.** Timer indicator
- 10.** Measurement display area
- 11.** Standby / alarm indicator
- 12.** EnergyShare indicator

## OPTIONS

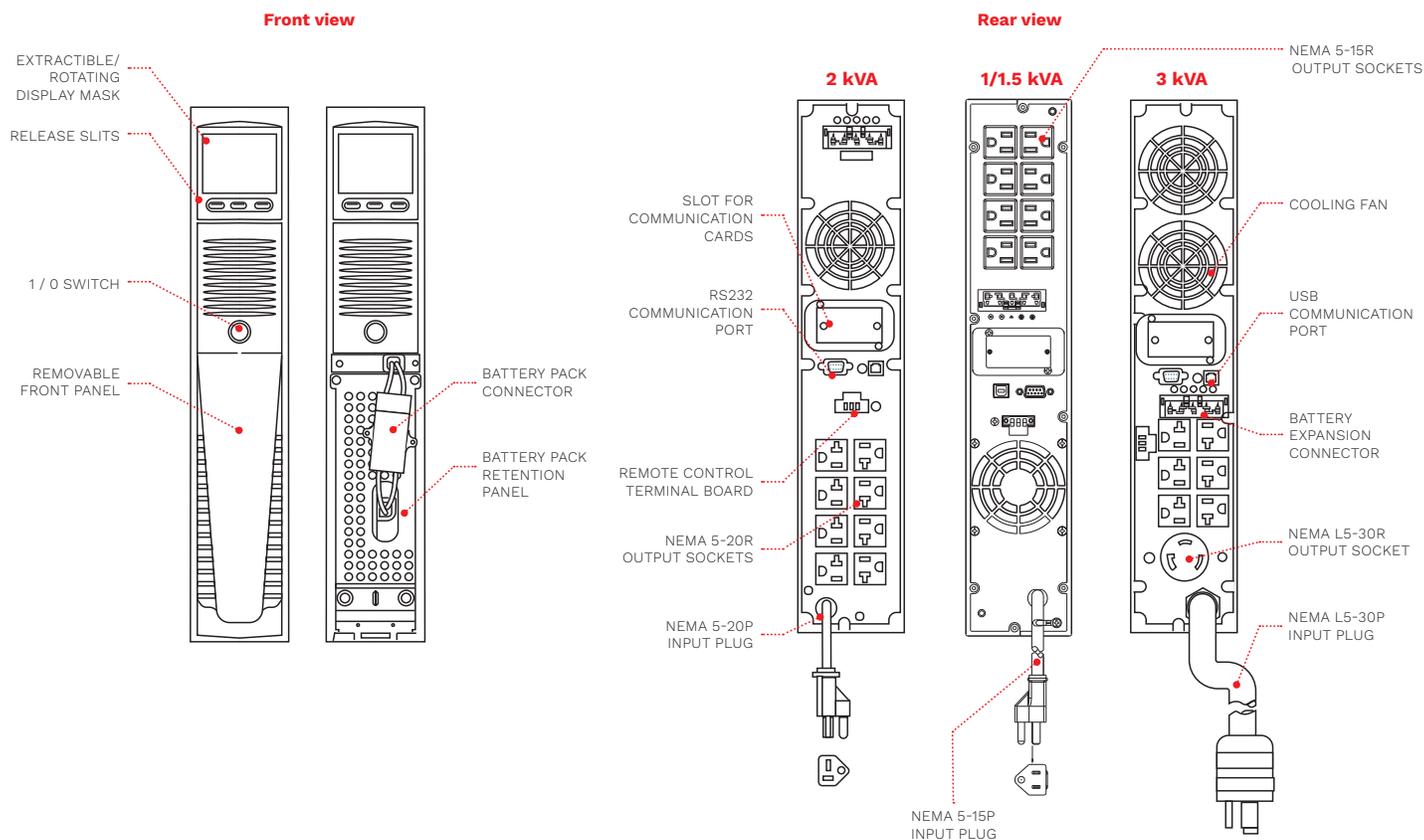
### SOFTWARE

PowerShield<sup>3</sup>  
PowerNetGuard

### ACCESSORIES

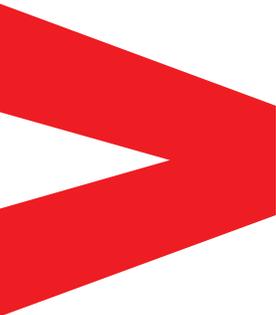
NETMAN 104  
MULTICOM 184

## DETAILS



<b>MODELS</b>	<b>SDH 1000 RT</b>	<b>SDH 1500 RT</b>	<b>SDH 2000 RT</b>	<b>SDH 3000 RT</b>
<b>INPUT</b>				
Rated power [V]	1000	1500	2000	3000
Rated voltage [V]	100 / 110 / 115 / 120 / 127			
Voltage tolerance [V]	80 <Vin <150 @ 100% Load			
Frequency [Hz]	60			
Frequency tolerance [Hz]	60 ±5%			
Power Factor	>0.98			
Current distortion	≤6%			
<b>BYPASS</b>				
Voltage tolerance [V]	85 / 140			
Frequency tolerance [Hz]	Frequency selected (from ±0 to ±5 configurable)			
Number phases	1			
<b>OUTPUT</b>				
Rated power [kVA]	1	1.5	2	3
Active power [kW]	1	1.5*	2*	3*
Number phases	1			
Crest factor [Ipeak/Irms]	3:1			
Rated Voltage [V]	Selectable: 100 / 110 / 115 / 120 / 127			
Waveform	Sinewave			
Frequency [Hz]	Can be selected: 60 or self-learning			
Voltage distortion with non linear load	≤4%			
Voltage distortion with linear load	≤2%			
<b>OVERLOAD TIMES</b>				
100% <Load <110%	1 min			
125% = Load <150%	4 s			
Load >150%	0.5 s			
<b>BATTERIES</b>				
Type	VRLA AGM lead, maintenance-free			
Typical recharge time	2-4 h			
DC Voltage	36VDC		72VDC	
<b>ENVIRONMENTAL</b>				
Maximum altitude [ft/m]	20000 / 6000			
Color	RAL 9005			
Communications	USB / DB9 with RS232 and contacts / Slot for communication interface			
Safety compliance	UL1778:2014 and CSA C22.2 No. 107.3-14			
EMC conformance	CFR 47 FCC Part 15, Subpart B, Class A 2016			
Accessories provided	Power cable, serial cable, USB cable, safety manual, quick start, software downloadable			
Protection rating	IP20			
Surge capability [joule]	300			
Certification	Certified by TUV per UL 1778			
LINE-INTERACTIVE/SMART ACTIVE efficiency	98%			
Noise Level	<40 dB(A) at 3.3 ft / 1 m			
Operating temperature	32 – 104 °F / 0 – 40 °C			
Relative humidity	<95% without condensation			
<b>OTHER</b>				
Net weight [lbs/kg]	37.48 / 17	39.68 / 18	58.42 / 26.5	69.44 / 31.5
Gross weight [lbs/kg]	45.19 / 20.5	47.40 / 21.5	67.24 / 30.5	79.36 / 36
Dimensions (WxDxH) [inches/mm]	3.42x16.73x17.71 / 87x425x450		3.42x24.60x17.71 / 87x625x450	

\* Conditions Apply



# Sentinel RT

6-10 kVA/kW



ONLINE



Tower/Rack



Plug & Play installation



USB plug



TAA Compliant\*



1:1 6-10 kVA/kW

## True-ON LINE Rack/Tower UPS System

Input 208-240 V 60 Hz  
Output 208/220/230/240 V 60 Hz

### HIGHLIGHTS

- Power factor 1 kW = kVA
- Simplified installation
- High quality output voltage
- High battery reliability

Sentinel RT is designed to power critical loads such as servers, storage systems, telephone equipment, medical systems and industrial applications.

The UPS is ideal for Blade servers with an input power factor close to Unity (1). The UPS can be used as tower UPS or within a rackmount cabinet, and takes up only 2U in height. Sentinel RT has a modern design, choice of functional formats, and represents the state-of-the-art technology from the Riello UPS research & development team.

The UPS can achieve an ON LINE operating efficiency of 92%. For critical business continuity applications requiring long runtimes, Sentinel RT can be installed with battery extension packs.

The UPS also incorporates the Riello UPS 'power-off' function found in other ECO Line

UPS. Sentinel RT is designed to save energy when no loads are connected.

### SIMPLIFIED INSTALLATION

Tower or Rackmount UPS: SENTINEL RT can be installed as tower or 19" rack mount UPS, with a front mimic panel that can be turned through 90° to suit the installation.

- Noise Free Operation (<40 dBA): the UPS can be installed in any environment thanks to its PWM digitally-controlled high frequency inverter.
- High Temperature Operation: UPS components are sized for high temperature operation up to 104 °F (40 °C) and are not therefore stressed during normal operational environments.

Reduced management costs

Sentinel RT can be programmed remotely via software or set manually from the front

\*Subject to availability



mimic panel to operate in a range of energy saving operating modes:

- ON LINE: maximum power protection and output voltage waveform quality (efficiency up to 92%);
- ECO Mode: to increase efficiency (up to 98%), allows for the selection of Line Interactive technology (VI) to power low priority loads from the mains supply;
- SMART ACTIVE: the UPS automatically decides upon the operating mode (VI or VFI) based on the quality of the mains power supply;
- STANDBY OFF: the operating mode in which the UPS functions as an emergency device. While power is present the UPS does not intervene. In the event of a blackout, the necessary power is provided by the UPS.

### HIGH QUALITY OUTPUT VOLTAGE

- Even with non-linear loads (IT loads with a crest factor of up to 3:1);
- High short circuit current on bypass;
- High overload capacity: 150% by inverter (even with mains failure);
- Filtered, stabilised and reliable voltage (TRUE-ON LINE double conversion technology), with filters for the suppression of atmospheric disturbances;
- Power factor correction: UPS input power factor close to 1 and sinusoidal current uptake.

### HIGH LEVELS OF BATTERY RELIABILITY

Automatic and manual battery tests. Batteries are 'hot-swappable' and user replaceable.

### EMERGENCY FUNCTION

This configuration ensures the operation of those emergency systems that require continuous, reliable and long-lasting power supply in the event of a mains power failure, such as emergency lighting, fire detection/ extinguishing systems and alarms. When the mains power supply fails, the inverter begins powering the loads with a progressive start up (Soft Start) in order to prevent overload.

### OTHER FEATURES

- Output voltage can be selected using display;
- Auto-restart when mains power returns (programmed via software);
- Standby on Bypass: when the machine is switched off, it automatically goes into bypass operation with batteries charging;
- Power-Off with zero load connected to save energy;
- Low battery warning;
- Power-on delay;
- Full microprocessor control;
- Automatic bypass without interruption;
- Status, measurements and alarms available on the front panel mimic panel and LCD;
- UPS firmware upgrade via PC;
- Back-feed protection;
- Manual option to switch to bypass;
- Isolation transformer cabinet.

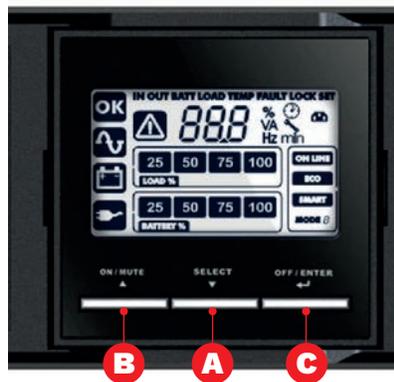
### ADVANCED COMMUNICATIONS

- SENTINEL RT offers maximum flexibility for integrations with any communication system.
- Multi-platform communication for all operating systems and network environments: PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
  - RS232 serial port and opto-isolated contacts;
  - USB port;
  - Slot for TCP/IP, SNMP communication card.

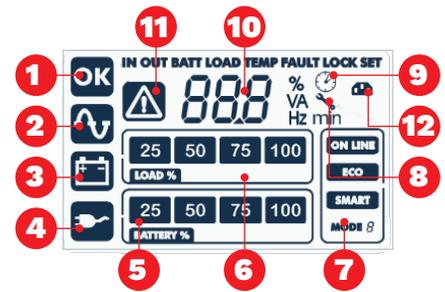
### UNITY POWER FACTOR

- More power delivered;
- More real output power (W).

### 2-YEAR WARRANTY



- A. "SEL" Button
- B. "ON" Button
- C. "STANDBY" Button



- 1. Regular operating mode
- 2. Network operating mode
- 3. Battery operating mode
- 4. Load powered by bypass
- 5. Battery charge level indicator
- 6. Load level indicator
- 7. Configuration area
- 8. Maintenance required indicator
- 9. Timer indicator
- 10. Measurement display area
- 11. Standby / alarm indicator
- 12. EnergyShare indicator

### OPTIONS

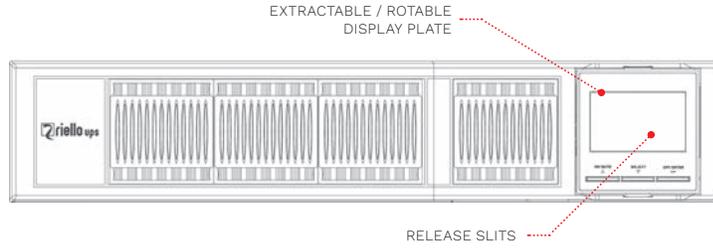
#### SOFTWARE

PowerShield<sup>3</sup>  
PowerNetGuard

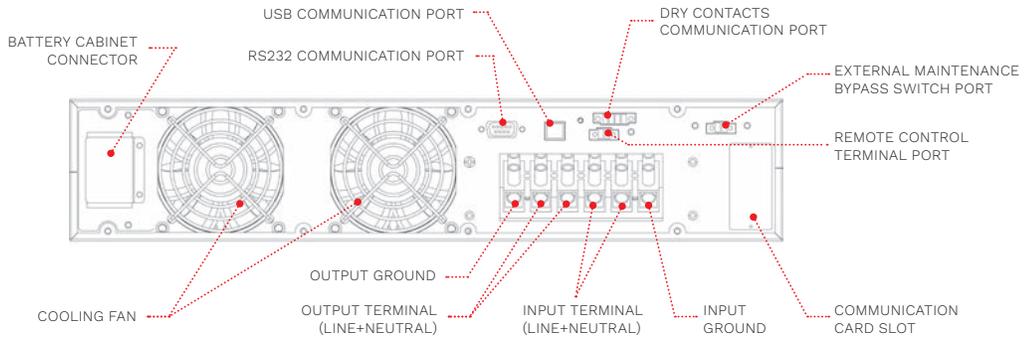
#### ACCESSORIES

NETMAN 104  
MULTICOM 184

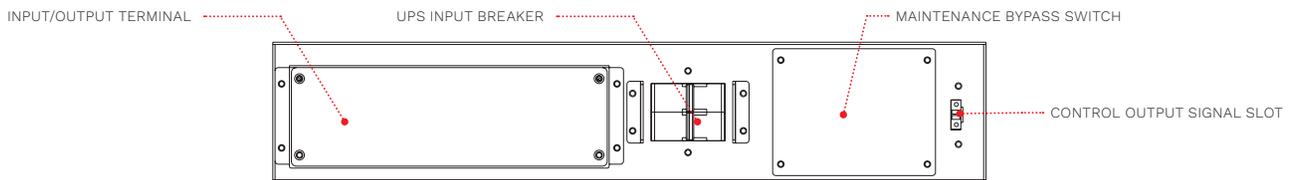
**Front view**



**Rear view**

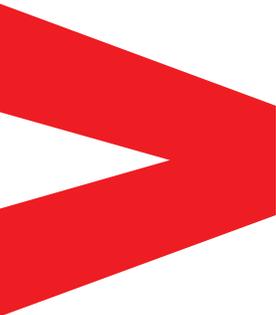


**Manual Bypass (option)**



MODEL	UPS Cabinet	Battery Cabinet QTY	Transformer cabinet for 120V/127V output	Dimensions (in tower configuration) W x D x H (in/mm)	Weight (lb/kg)
SDH-6000-RT-ER-C0	Yes	0	Yes	9(5U)x25x19 / 218(5U)x438x645	181 / 82
SDH-10000-RT-ER-C0	Yes	0	Yes	9(5U)x25x19 / 218(5U)x438x725	249 / 113
SDH-6000-RT-ER-C1	Yes	1	Yes	14(8U)x26x19 / 349(8U)x438x645	302 / 137
SDH-10000-RT-ER-C1	Yes	1	Yes	14(8U)x29x19 / 349(8U)x438x725	370 / 167
SDH-6000-RT-ER-C2	Yes	2	Yes	19(11U)x26x19 / 480(11U)x438x645	423/ 191
SDH-10000-RT-ER-C2	Yes	2	Yes	19(11U)x29x19 / 480(11U)x438x725	492 / 223
SDH-6000-RT-ER-C3	Yes	3	Yes	25(14U)x26x19 / 611(14U)x438x645	545 / 247
SDH-10000-RT-ER-C3	Yes	3	Yes	25(14U)x29x19 / 611(14U)x438x725	613 / 278
SDH-6000-RT-ER-C4	Yes	4	Yes	30(17U)x26x19 742(17U)x438x645	666 / 302
SDH-10000-RT-ER-C4	Yes	4	Yes	30(17U)x29x19 747(17U)x438x725	734 / 333

<b>MODELS</b>	<b>SDH 6000 RT</b>	<b>SDH 10000 RT</b>
<b>INPUT</b>		
Rated Power [VA]	6000	10000
Rated voltage [V]	208 / 220 / 230 / 240	
Voltage tolerance [V]	110 <Vin <300 @ 60% LOAD / 176 <Vin <300 @ 100% Load	
Frequency [Hz]	50 / 60	
Frequency tolerance [Hz]	60 ±5%	
Power Factor	>0.98	
Current distortion	≤6%	
<b>BYPASS</b>		
Voltage tolerance [V]	176 / 276	
Frequency tolerance [Hz]	Frequency selected (from ±0 to ±5 configurable)	
Number phases	1	
<b>OUTPUT</b>		
Rated power [kVA]	6	10
Active Power [kW]	6	10
Voltage [V] option UPS	208 / 220 / 230 / 240	
Voltage [V] option with transformer cabinet	240 plus neutral for a split of 120 / 120 or 230 plus neutral for a split 115 / 115	
Number phases	1	
Crest factor [Ipeak/Irms]	3:1	
Waveform	Sinewave	
Frequency [Hz]	Can be selected: 60 or self-learning	
Voltage distortion with non linear load	≤4%	
Voltage distortion with linear load	≤2%	
<b>OVERLOAD TIMES</b>		
100% <Load <110%	10 min	
125% = Load <150%/130%	1 min	
Load >150%/130%	1 min	
<b>BATTERIES</b>		
Type	VRLA AGM lead, maintenance-free	
Typical recharge time	6 h	
DC Voltage	240 VDC	
<b>ENVIRONMENTAL</b>		
Maximum altitude [ft/m]	20000 / 6000	
Color	RAL 9005	
Communications	USB / DB9 with RS232 and contacts / Slot for communication interface	
Safety compliance	UL1778:2014 and CSA C22.2 No. 107.3-14	
EMC conformance	CFR 47 FCC Part 15, Subpart B, Class A 2016	
Accessories provided	Power cable, serial cable, USB cable, safety manual, quick start, software downloadable	
Protection rating	IP20	
Surge capability [joule]	660	
Certification	Certified by TUV per UL 1778	
LINE-INTERACTIVE/SMART ACTIVE efficiency	98%	
Noise Level	<40 dB(A) at 3.3 ft / 1 m	
Operating temperature	32 – 104 °F / 0 – 40 °C	
Relative humidity	<95% without condensation	
<b>OTHER</b>		
Weight [lbs/kg]	37.47 / 17	44 / 20
Dimensions (WxDxH) [inches/mm]	3.4x17.24x24 / 87x438x610	



# Guard Tower



DATACENTER



DIGITAL LIVING



E-MEDICAL



INDUSTRY



TRANSPORT

**1:1** 6-10 kVA/kW

## True-ON LINE UPS System

Input 208-240 V 60 Hz  
Output 104/110/115/120 V 60 Hz or  
208/220/230/240 V 60 Hz



ONLINE



Tower



Service  
1st start



USB  
plug



TAA  
Compliant\*



## HIGHLIGHTS

- **Small footprint**
- **Power factor 1**
- **Maintenance bypass**
- **Galvanic Isolation output transformer**
- **High quality output voltage**

Guard Tower is the ideal solution for protecting mission critical systems such as safety devices, telecommunications equipment and IT systems to ensure maximum power reliability.

Guard Tower is designed and built using state-of-the-art technology and components to provide maximum protection to the powered loads with no impact on downstream systems and optimised energy savings. The series includes 6-10 kVA/kW single/single-phase output models with ON LINE double conversion technology (VFI): the load is powered continuously by the inverter which supplies a sinusoidal voltage, filtered and stabilised in terms of form and frequency. Input and output filters provide significant further immunity from mains disturbances and lightning strikes.

In terms of technology and performance,

Guard Tower is one of the best UPS available on the market today: output power factor 1 to increase in efficiency of system and devices and reduce power system losses. Selectable ECO Mode functions; new custom diagnostics LCD display, RS232 and USB interfaces with PowerShield<sup>3</sup> software, ESD input, interface slot.

### RELIABILITY

- Total microprocessor and DSP control.
- Interruption-free static and manual bypass;
- Specifications guaranteed up to 104 °F/40 °C (the components are designed to work at high temperatures and thus are subject to less stress at normal temperatures).

\*Subject to availability



### UNITY POWER FACTOR

- More power delivered;
- More real output power (W).

### OPERATING MODE SELECTION

The operating mode can be programmed via software or manually via the front display panel.

- ON LINE;
- ECO Mode: to increase efficiency (up to 98%), allows for the selection of LINE INTERACTIVE technology (VI) to power low priority loads from the mains supply;
- STANDBY OFF: the UPS can be selected to function only when the mains power supply fails (emergency only mode);
- Frequency Converter operation (50 or 60 Hz).

### HIGH QUALITY OUTPUT VOLTAGE

- Even with non-linear loads (IT loads with a crest factor of up to 2.6:1);
- High short circuit current on bypass;
- High overload capacity: 150% by inverter (even with mains failure);
- Filtered, stabilised and reliable voltage (double conversion ON LINE technology with filters for the suppression of atmospheric disturbances);
- Power factor correction: UPS input power factor close to 1 and sinusoidal current uptake.

### SIMPLIFIED INSTALLATION

- Output terminal board;
- Optional PDU;
- Simplified positioning (built-in castors).

### HIGH BATTERY RELIABILITY

- Automatic and manual battery test.
- Proper battery care is critical to ensuring correct UPS operation in emergency conditions. The Riello UPS battery care system consists of a series of features and capabilities to optimise battery management and obtain the best performance and operating life possible;
- Extendible runtime using matching Battery cabinets;
- The batteries do not cut in during mains failures of <20 ms (high hold up time) or when the input supply is between 184 V to 276 V.

### LOW IMPACT ON THE MAINS

Sinusoidal uptake of input current on single-phase/single-phase series.

### RUNTIME EXPANDABILITY

Optional battery extension packs can be connected to increase UPS runtime.

### OTHER FEATURES

- Advanced diagnostics: status, measurements and alarms available on new custom LCD display;
- Low noise (<52 dBA): can be installed in any environment thanks to its high frequency switching inverter and PWM load-dependent digitally controlled fan (>20 kHz, value above audible range);
- Auto restart (automatic when mains supply is restored, programmable via software);
- Back-feed protection standard: to prevent energy from being fed back to the network;
- UPS digital updating (flash upgradeable).

### ADVANCED COMMUNICATIONS

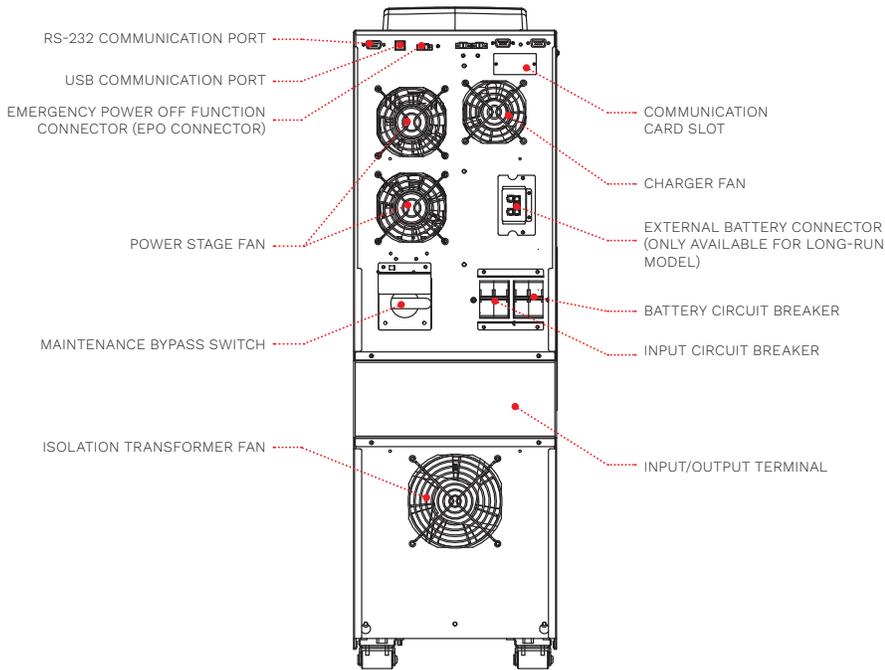
GUARD TOWER offers maximum flexibility for integrations with any communication system.

- Advanced multi-platform communications for all operating systems and network environments: PowerShield<sup>3</sup> monitoring and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
- RS232 serial port and opto-isolated contacts;
- USB port;
- Slot for TCP/IP, SNMP communication card;
- Surge voltage let-through (max)—< 10V normal mode (L-N), < 0.5V common mode (N-G) when subjected to 6kV ANSI/IEEE C62.41 Cat. A;
- Static switch—automatically transfers output from inverter to the isolated bypass source in the event of an overload or fault;
- Surge voltage withstand capability—ANSI/IEEE C62.41 Category A & B, 6kV/200 & 500A, 100kHz ringwave.



## DETAILS

### GTT 6000 - GTT 10000



## OPTIONS

### SOFTWARE

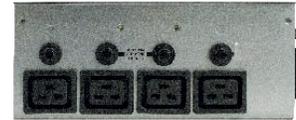
PowerShield<sup>3</sup>  
PowerNetGuard

### ACCESSORIES

NETMAN 104  
MULTICOM 184  
PDU box (see images below)



*PDU box top view*



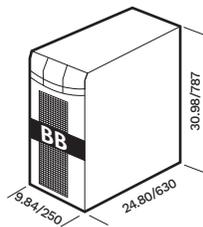
*PDU box bottom view*

## BATTERY CABINET

### MODELS

**BB GTT 240V A3, BB GTT 240V A5, BB GTT 240V M1**

Dimensions  
[inches/mm]



<b>MODELS</b>	<b>GTT 6000</b>	<b>GTT 10000</b>
<b>INPUT</b>		
Rated Power [VA]	6000	10000
Rated voltage [V]	208 / 220 / 230 / 240	
Voltage tolerance [V]	110 <Vin <300 @ 60% LOAD / 176 <Vin <300 @ 100% Load	
Frequency [Hz]	50 / 60	
Frequency tolerance [Hz]	60 ±5%	
Power Factor	>0.99	
Current distortion	≤6%	
<b>BYPASS</b>		
Voltage tolerance [V]	176 / 276	
Frequency tolerance [Hz]	Frequency selected (from ±0 to ±5 configurable)	
Number phases	1	
<b>OUTPUT</b>		
Rated power [kVA]	6	10
Active Power [kW]	6	10
Voltage [V] option UPS	240 plus neutral for a split of 120 / 120 or 230 plus neutral for a split 115 / 115	
Number phases	1	
Crest factor [Ipeak/Irms]	2.6:1	
Waveform	Sinewave	
Frequency [Hz]	Can be selected: 60 or self-learning	
Voltage distortion with non linear load	≤6%	
Voltage distortion with linear load	≤2%	
<b>OVERLOAD TIMES</b>		
100% <Load <110%	10 min	
110% = Load <130%	1 min	
Load > 130%	1 s	
<b>BATTERIES</b>		
Type	VRLA AGM lead, maintenance-free	
Typical recharge time	6 h	
DC Voltage	240 VDC	
<b>ENVIRONMENTAL</b>		
Maximum altitude [ft/m]	11500 / 3500	
Color	Black	
Communications	USB / DB9 with RS232 and contacts / Slot for communication interface	
Safety compliance	UL1778:2014 and CSA C22.2 No. 107.3-14	
EMC conformance	CFR 47 FCC Part 15, Subpart B, Class A 2016	
Accessories provided	Power cable, serial cable, USB cable, safety manual, quick start, software downloadable	
Protection rating	IP20	
Surge capability [joule]	660	
Certification	Certified by TUV per UL 1778	
LINE-INTERACTIVE/SMART ACTIVE efficiency	98%	
Noise Level	<55 dB(A) at 3.3 ft / 1 m	<58 dB(A) at 3.3 ft / 1 m
Operating temperature	32 – 104 °F / 0 – 40 °C	
Relative humidity	<95% without condensation	
<b>OTHER</b>		
Weight [lbs/kg]	258 / 117	313 / 142
Dimensions (WxDxH) [inches/mm]	9.84x24.80x32.44 / 250x630x824	



DATACENTER



E-MEDICAL



EMERGENCY



INDUSTRY



TRANSPORT

# Sentryum S3U

**3:3** 10-60 kVA

Input 208-220 V  
three-phase + N, 60 Hz

Output 208/220 V  
three-phase + N, 60 Hz

10 kVA Input 480  
three-phase + N, 60 Hz

Output 480 V  
three-phase + N, 60 Hz



ONLINE



Tower



Service  
1st start



USB  
plug



TAA  
Compliant



## HIGHLIGHTS

- **Efficiency up to 95.5%**
- **High power availability**
- **Outstanding battery care**
- **Compact**
- **Maximum reliability**
- **Flexibility of use**
- **Graphic touch screen display**

The rapid evolution of IT technologies, augmented focus on environmental matters and complexity of critical applications are demanding more flexible, efficient, secure and interconnected power protection solutions. The Sentryum 10-60 kVA @ 208 V offers the best combination of power availability, energy efficiency and global performance ensuring installation and running cost savings. It is the very latest Riello UPS development resulting in a third-generation transformer-free UPS, originally introduced into the market over twenty years ago. The Sentryum series is a transformer-free UPS available in 10-20-30-40-50-60 kVA with three-phase input and output. Sentryum is designed and built using state-of-the-art technology and components. It applies the advanced technologies such as DSP (Digital Signal

Processor), dual core microprocessor, three-level inverter circuits to provide maximum protection to the critical loads with no impact on downstream systems, whilst maintaining optimised energy savings. With a unique control system, it makes it possible to reduce the inverter output harmonic voltage distortion and provide rapid response to all load variations, ensuring an outstanding sinewave form during all conditions. Furthermore, Riello UPS' technological advances in digital control and power components contribute to minimise the impact on the grid. Sentryum provides the solution to installation problems in systems where the power supply has limited power available, when the UPS is supported by a generator or where there are compatibility problems with loads that generate harmonic currents.



### EXTENSIVE RANGE OF SOLUTIONS

Sentryum has been conceived to optimise the specific requirements by enhancing the installation flexibility. Riello UPS offers Sentryum in two different frame solutions the S3U model with only one switch and the S3U SW with four switches.

### COMPACT

Modern guidelines and sustainable best practices direct us to conceive and design UPS with particular focus on the entire product life cycle, therefore applying ultimate but resilient technologies, recyclable materials and miniaturisation of assemblies whilst ensuring the systems global reliability, which is pivotal for any UPS.

### HIGH EFFICIENCY

Sentryum is a true ON LINE double-conversion UPS system providing the very highest levels of power availability, flexibility and unrivalled energy efficiency with superior performance for any small Data Center and mission critical applications. Thanks to the three-level IGBT inverter topology and innovative digital control, the Sentryum provides up to 95.5% overall efficiency, whilst maintaining a reduced number of components, connections and ribbon cables, which increases the overall system reliability, thanks to a higher MTBF. Riello UPS' advanced average current mode digital PFC control and State-of-the-art three-level NPC inverters working at high frequency (> 16 kHz), contributes to minimise the UPS's impact on the grid

and hence reducing the overall operational costs and energy bills. Sentryum applies a zero impact onto its power source, whether this is from the mains power supply or a generator, this results in:

- very low input current distortion <3%;
- near unity input power factor 0.99;
- power walk-in function that ensures progressive rectifier start up;
- start up delay function, to sequentially restart the rectifiers once the mains power supply is restored if there are several UPS within the overall system;
- Sentryum provides a filtering and power factor correction function within the power network upstream of the UPS.

### HIGH POWER AVAILABILITY

Sentryum's design delivers full power up to 104 °F/40 °C ambient temperature. Furthermore, Sentryum's advanced digital control makes it possible to deliver up to 270% inverter current for 200 ms and 150% for 300 ms (10-30 kVA) or 250% for 200 ms and 150% for 300 ms (40-60 kVA). The high overcurrent availability enables the system to deal with sudden peak loads (without static bypass intervention) and provide the short circuit current if required during operation on battery. The innovative input stage design provides extremely high battery recharging current whilst at the same time an energy efficient conversion process during battery operation to reduce the power wasted and to increase the autonomy time compared to legacy DC/AC converters.

### SMART BATTERY MANAGEMENT

Proper battery care is critical to ensure the correct operation of the UPS during emergency conditions. The Riello UPS Smart Battery Management (SBM) consists of a series of features and capabilities to optimise battery management and obtain the best performance and operating life possible. Battery recharging: Sentryum is suitable for use with conventional hermetically sealed lead-acid (VRLA), AGM and GEL batteries, Open Vent and Nickel Cadmium batteries. Superior battery charging availability up to 36 A, meaning that the Sentryum can be utilized within any extended battery autonomy application. Depending on the battery type, different charging methods are available:

- One-level voltage recharge, typically used for widely available VRLA AGM batteries;
- Two-level voltage recharge according to IU specification;
- Cyclical recharge system to reduce electrolyte consumption and lengthen the life of VRLA batteries.

Recharge voltage compensation based on ambient temperature to prevent excessive battery charging or overheating.

Battery tests to diagnose in advance any reduction in performance or problems with the batteries.

Deep discharge protection: during extended low-load discharges, the end-of-discharge voltage is increased - as recommended by battery manufacturers - to prevent damage or reduced battery performance.

Ripple current: recharge ripple current (residual AC component at low frequency)



is one of the main causes of reduced reliability and battery life. Using a high frequency battery charger, Sentryum reduces this value to negligible levels, prolonging battery life and maintaining high performance over a long period of time. Wide voltage range: the rectifier is designed to operate within a wide input voltage range (up to -40% at half load), reducing the need for battery discharge and thus helping to extend battery life.

#### **MAXIMUM RELIABILITY AND AVAILABILITY**

Distributed parallel configuration of up to 8 units (10-30 kVA) and up to 4 units (40-60 kVA) per redundant (N+1) or power parallel system. The UPS continue to operate in parallel even if the connection cable is interrupted (Closed Loop).

Advanced technology and use of high performance components, allows Sentryum to provide exceptional performance and efficiency from a very compact size:

- The smallest overall footprint is only 0.45 sqm for Sentryum 30 kVA/kW with 8 minutes back-up time;
- The input power stage (IGBT rectifier) ensures an input power factor close to 1 with extremely low current distortion, avoiding the need for bulky and expensive filters;
- Extremely low output THDV under any circumstances provides a perfect sinewave and therefore a reliable power supply for the load preventing and disturbances from affecting the network users;
- More energy to face sudden load increase like for example 110% for 60 minutes or 125% for 10 minutes;

- Smart ventilation principle, Sentryum manages the fan speed and airflow in accordance with the room temperature and load level. This preserves the lifespan of the fans, whilst at the same time reduces noise levels and the overall power consumption due to unnecessary UPS ventilation. Furthermore, the overall UPS high efficiency reduces the losses and therefore the need for high levels of ventilation compared to older legacy UPS. In addition, this results in a decrease in the overall noise level at the nominal load and a reduction in the number of fans required, which significantly benefits the operating and maintenance costs.

#### **FLEXIBILITY**

With its flexible range of two solutions, configuration, performance, accessories and options, Sentryum is suitable for use in a wide range of applications:

- Two modules with or without switches for better matching the customer requirements;
- ON LINE, ECO, SMART ACTIVE and STANDBY OFF operating modes.
- Frequency converter mode;
- Cold Start to switch on the UPS even when there is no mains power present;
- Parallel configuration up to 8 units (10 to 30 kVA) or 4 units (40 to 60 kVA);
- Optional temperature sensor for external battery cabinets, to assist recharge voltage compensation;
- High power battery chargers to optimise charge time in the event of long runtimes;
- Dual input mains power supply;
- Different sized battery cabinets and capacities, for extended runtimes.

#### **ADVANCED COMMUNICATIONS**

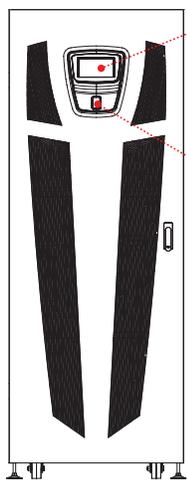
Sentryum is equipped with a coloured graphic touch screen display providing UPS information, measurements, operating states and alarms in different languages. The default screen displays the UPS status, graphical indication of the energy path through the UPS and the operational condition of the various assemblies (rectifier, batteries, inverter, bypass) within the UPS.

Furthermore, the user interface includes a UPS status led bar which delivers immediate and clear information regarding the overall status of the UPS by changing the colour (blue, yellow and red) according with the operating mode and condition.

- Advanced multi-platform communications for all operating systems and network environments: Powershield<sup>3</sup> supervision and shut-down software for Windows, Mac OS X operating systems and other Unix operating systems;
- RS232 serial on RJ10 connector and USB ports;
- 2 slots for the installation of optional communications accessories such as network adaptors and volt free contacts etc.;
- Embedded contact interface which includes 5 programmable inputs and 4 programmable outputs;
- REPO Remote Emergency Power Off for switching off the UPS via a remote emergency button.

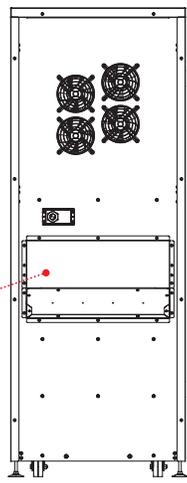
# DETAILS

**S3U and S3U SW 10-30 kVA  
(front)**



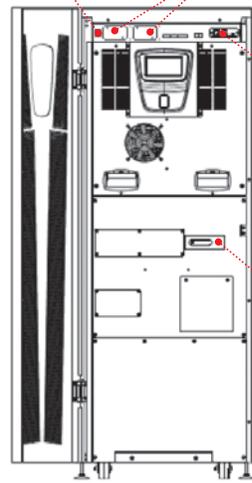
TOUCH SCREEN DISPLAY  
UPS STATUS LED  
POWER TERMINALS (WITH COVER)

**S3U and S3U SW 10-30 kVA  
(rear)**



BATTERY START BUTTON (COLD START)

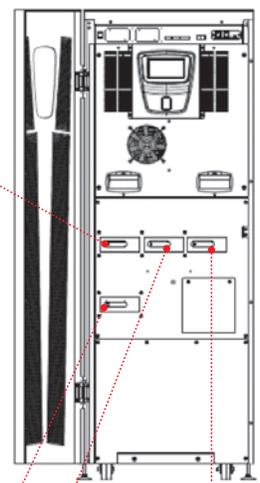
**Model S3U 10-30 kVA  
(front)**



SLOTS FOR OPTIONAL ACCESSORIES  
COMMUNICATION AND CONTACTS CARD

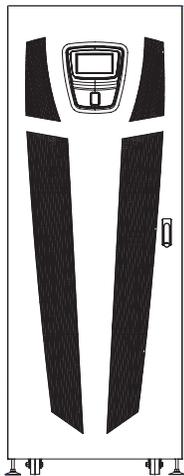
PARALLEL OPTION CARD  
LOAD SWITCH  
INPUT SWITCH

**Model S3U SW 10-30 kVA  
(front)**



BYPASS SWITCH  
MBY SWITCH  
INPUT SWITCH

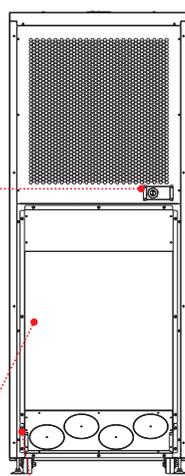
**S3U and S3U SW 40-60 kVA  
(front)**



EXTERNAL SIGNAL COVER

TERMINAL BLOCKS COVER

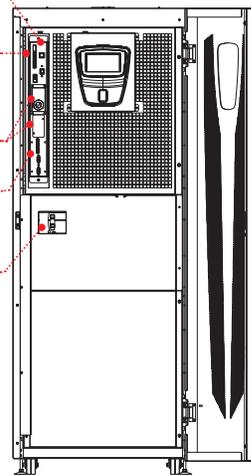
**S3U and S3U SW 40-60 kVA  
(rear)**



CABLE OUTPUT

**S3U and S3U SW 40-60 kVA  
(front)**

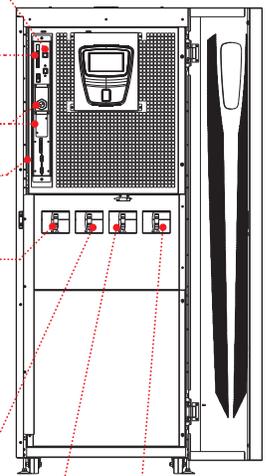
BATTERY START BUTTON (COLD START)  
CONTACT  
COMMUNICATION SLOT  
PARALLEL OPTION CARD  
SWITCH INPUT



BATTERY START BUTTON (COLD START)

CONTACT  
COMMUNICATION SLOT  
PARALLEL OPTION CARD  
INPUT SWITCH

**Model S3U 40-60 kVA  
(front)**



BYPASS SWITCH  
MBY SWITCH  
OUTPUT SWITCH

## OPTIONS

### SOFTWARE

PowerShield<sup>3</sup>

PowerNetGuard

### ACCESSORIES

NETMAN 204

MULTICOM 384

MULTICOM 392 (10-30 kVA)

MULTIPANEL

### PRODUCT ACCESSORIES

*(Check with the factory)*

Versions with other operating voltages  
208 V/480 V, 480 V/208 V, 480 V/480 V

Parallel configuration kit

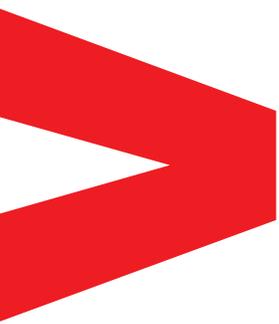
Battery Cabinets

External Maintenance Bypass



MODELS	S3U 10	S3U 20	S3U 30	S3U 40	S3U 50	S3U 60
<b>INPUT</b>						
Rated voltage [V]	208 three-phase + N					
Voltage tolerance [V]	+20% -20% <sup>1</sup>					
Frequency tolerance [Hz]	40 to 72					
Power factor @ full load	0.99					
Current distortion [THDI]	< 3%			< 5%		
<b>BYPASS</b>						
Rated voltage [V]	208 / 220 three-phase + N					
Voltage tolerance (Ph-N) [V]	±5 to ±15% (adjustable)					
Rated frequency [Hz]	50 / 60					
Frequency tolerance	±6% (selectable)					
Bypass overload	110% infinite, 125% for 60 min, 150% for 10 min, 200% for 1 min (2 s for 40 to 60 kVA)					
<b>OUTPUT</b>						
Nominal power [kVA]	10	20	30	40	50	60
Active power [kW]	9	18	27	40	50	60
Power factor	0.9			1		
Rated voltage [V]	208 / 220 three-phase + N					
Nominal frequency [Hz]	50 / 60					
Frequency stability on battery operation	0.01%					
Voltage stability	±1%					
Dynamic stability	±3%					
Voltage distortion	≤1% with linear load ≤3% with non-linear load					
Overload	110% for 60 min, 125% for 10 min, 150% for 1 min					
<b>BATTERIES</b>						
Type	VRLA AGM/GEL/NiCd					
Recharging method	One level, Two level, Cyclic recharge (selectable)					
<b>OVERALL SPECIFICATIONS</b>						
Weight without batteries [lb/kg]	324 / 147	324 / 147	340 / 154	591 / 268	613 / 278	613 / 278
Dimensions (WxDxH) [inches/mm]	21.7x32.7x59.0 / 550x830x1500			23.6x38.6x61.4 / 600x980x1560		
Communications	UPS status led bar - Graphic touch screen display - 2 slots for communications interface USB - RS232 Contact interface with 5x opto insulated Input and 4x Output relay					
Operating temperature	32 – 104 °F / 0 – 40 °C					
Range of relative humidity	5-95% without condensing					
Colour	Pantone Black C					
Standards	UL 1778 5th Edition CSA C22.2 107.3 -05 and Annex NNN, UL 60950-11, FCC Part 15 Subpart J class A – IEC 62040-3					
Moving the UPS	Castors/pallet jack					

<sup>1</sup> Wider voltage tolerance acceptable with conditions applied.



# Master HP UL



DATACENTER



E-MEDICAL



EMERGENCY



INDUSTRY



TRANSPORT

**3:3** 65-500 kVA

Input 480 V three-phase + N, 60 Hz  
Output 480 V three-phase + N, 60 Hz



ONLINE



LISTED



Tower



IEC CERTIFIED



Service 1st start



TAA Compliant



## HIGHLIGHTS

- **High efficiency**
- **IGBT-based rectifier technology**
- **Compact, reliable and robust**
- **Galvanic isolation**
- **High overload capacity**

The high levels of quality, reliability and energy savings offered by the Master HP range of UPS, has been extended to include a UL/CSA Listed, 480 V 60 Hz version with ratings from 65 kVA to 500 kVA. IT managers, facility managers, and CTOs are under increasing pressure to reduce downtime and assure that their critical loads are supplied with uninterrupted and high quality power. With this increasingly stringent requirement, Riello UPS has invested in power solutions that meet strict demands; a commitment resulting in the launch of the Master HP UL range. More than just an innovative and technologically-advanced UPS, it is a leap into the future of three-phase technology. With its double conversion ON LINE technology based entirely on IGBT and digital signal processors (DSP), the Master HP UL range

ensures maximum critical load protection, with VFI SS 111 classification (Voltage and Frequency Independent) in accordance with IEC EN 62040-3. This range is designed using a new configuration that includes an IGBT sinusoidal input rectifier. Unique in its design, double conversion technology with galvanic isolated output guarantees a quality power supply that is completely protected from all electrical anomalies at the input.

### COMPLETE GALVANIC SEPARATION

The Master HP UL UPS features an output isolation transformer on the inverter as part of the inverter circuit inside the UPS cabinet, providing galvanic isolation between the load and the battery with improved versatility in system configuration, allowing:

\* Models from 65 to 250 kVA.



- Complete UPS output galvanic isolation for critical infrastructures from the battery DC power source;
- Two truly separated supply inputs (utility and bypass), which can be taken from two different power sources (with different neutrals); this is particularly well suited for parallel systems in order to ensure selectivity between the two sources, improving the reliability of the entire installation;
- No neutral input connection is required at the UPS rectifier input stage; this method is particularly favorable in order to prevent the transmission of common neutral disturbances via the neutral conductor;
- No effects to the UPS output performance or reduced impact of the inverter power components while supplying specific loads; in addition the inverter transformer minimizes the impact of third harmonic disturbances, prevents the effects of energy back-feed into the inverter when supplying industrial load applications and can supply unbalanced loads;
- High inverter short circuit current to clear faults which occur between phase and neutral on load side (up to three times nominal current).

Output transformer housed within a cabinet which allows for a significant reduction in the footprint and provides space savings.

### ZERO IMPACT SOURCE

The Master HP UL series features the added advantages of the Zero Impact Source formula offered by an IGBT-based rectifier assembly. This eliminates problems connected with installation in networks with limited power capacity, where the UPS is supplied by a generator set or anywhere there are compatibility problems with loads that generate current harmonics. Master

MHT UL series UPS have zero impact on the power supply source, whether it is a utility grid or generator set:

- Input current distortion <3%;
- Input power factor 0.99;
- Power walk-in function that ensures progressive rectifier start up;
- Start up delay function, to restart the rectifiers when mains power is restored if there are several UPS in the system.

This provides savings in installation costs via:

- A smaller electrical infrastructure;
- Smaller circuit protection devices;
- Less wiring.

### FLEXIBILITY

Master HP UL is suitable for a wide range of applications including IT and the most demanding industrial environments and processes. With several operational configurations including ON LINE, ECO, SMART ACTIVE, STANDBY, Frequency Converter and Voltage Regulation. A broad range of accessories and options, complex configurations and system architectures can be achieved to guarantee maximum power availability and the option to add new UPS without interruption to site operations.

### BATTERY CARE SYSTEM: MAXIMUM BATTERY CARE

Master HP UL series UPS include a range of features designed to prolong battery life and reduce usage by using different recharging methods; deep discharge protection, current limitation, and voltage compensation based on ambient temperature.

### MAIN FEATURES

- Compact size: e.g.: only 2.330 in<sup>2</sup> for the Master HP UL 500 kVA;

- Reduced weight for transformer based UPS;
- Double load protection, both electronic and galvanic, towards the battery.

The entire Master HP UL range is suitable for use in a wide range of applications. The Master HP can supply any type of load, e.g. servers, controls, lighting, capacitive, switch mode. Power supply reliability and availability are ensured for critical applications by distributed parallel configurations of up to 8 units, for redundant (N+1) or power parallel configurations.

### ADVANCED SUPERVISION

The Master HP UPS has a front panel mounted graphic display providing UPS information, measurements, status updates and alarms in multiple languages, with waveform displays including voltage/ current and providing a kWh reading that can be used to measure IT loads and calculate a Data Center PUE (Power Usage Effectiveness) ratio.

## OPTIONS

### SOFTWARE

PowerShield<sup>3</sup>

PowerNetGuard

### ACCESSORIES

NETMAN 204

MULTIPANEL

Multi I/O (Relay Alarm card and generator Interface)

### PRODUCT ACCESSORIES

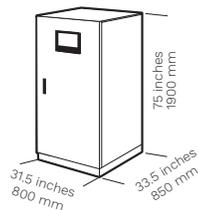
Parallel configuration kit (Closed Loop)

Fully configured battery systems with appropriate autonomy

Maintenance Bypass Switchgear for all models

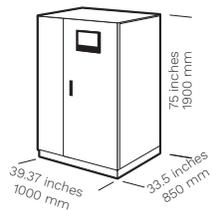
## DIMENSIONS

**MHT 65 UL**  
**MHT 80 UL**  
**MHT 100 UL**  
**MHT 125 UL**



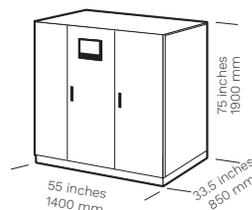
including manual bypass

**MHT 160 UL**  
**MHT 200 UL**  
**MHT 250 UL**



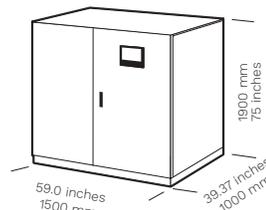
excluding manual bypass

**MHT 160 UL**  
**MHT 200 UL**  
**MHT 250 UL**

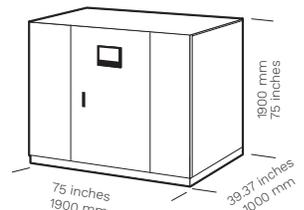


including manual bypass  
Top Cable Entry cabinets

**MHT 300 UL**  
**MHT 400 UL**  
**MHT 500 UL**



**MHT 300 UL TCE**  
**MHT 400 UL TCE**  
**MHT 500 UL TCE**



<b>MODELS</b>	<b>MHT 65 UL</b>	<b>MHT 80 UL</b>	<b>MHT 100 UL</b>	<b>MHT 125 UL</b>	<b>MHT 160 UL</b>
<b>INPUT</b>					
Rated voltage [V]	480 three-phase + N				
Frequency [Hz]	45 to 65				
Power factor	>0.99				
Harmonic current distortion	<3% THDi				
Soft start	0 - 100% in 125" (selectable)				
Frequency tolerance	±2% (selectable from ±1% to ±5% from front panel)				
Standard equipment provided	Back Feed protection; separable bypass line				
<b>BATTERIES</b>					
Type	VRLA, Wet Cell, NiCd				
Ripple current	Zero				
Recharge voltage compensation	-0.061% x V x °F / -0.11% x V x °C				
<b>OUTPUT</b>					
Nominal power [kVA]	65	80	100	125	160
Active power [kW]	58.5	72	90	112.5	144
Number of phases	3 + N				
Rated voltage [V]	480 three-phase + N				
Static stability	±1%				
Dynamic stability	from ±5% to ±1% in 20 ms				
Voltage distortion	<1% with linear load / <3% with non-linear load				
Crest factor [I <sub>peak</sub> /I <sub>rms</sub> ]	3:1				
Frequency stability on battery	0.05%				
Frequency [Hz]	60				
Overload	110% for 60 min; 125% for 10 min; 150% for 1 min				
<b>INFO FOR INSTALLATION</b>					
Weight [lbs/kg]	1500/680		1610/730	1742/790	1851/840
Weight with TCE and maintenance bypass [lbs/kg]	-	-	-	-	2204/1000
Dimensions (WxDxH) [inches/mm]	31.5x33.5x75 / 800x850x1900				39x33.5x75 / 1000x850x1900
Dimensions with TCE and Maintenance bypass (WxDxH) [inches/mm]	-	-	-	-	55x33.5x75 / 1400x850x1900
Remote signals	dry contacts (configurable)				
Remote controls	ESD and bypass (configurable)				
Communications	Double RS232 + dry contacts + 2 slots for communications interface with SNMP				
Operating temperature	32 – 104 °F / 0 – 40 °C				
Relative humidity	<95% non-condensing				
Color	Black (RAL 9005)				
Noise level at 3.3 ft / 1 m (ECO Mode) [dBA]	65			68	
IP rating	IP20				
Standards	UL Standard 1778: 2 <sup>nd</sup> edition from 65 to 125 kVA, 5 <sup>th</sup> edition from 160 to 250 kVA; From 160 to 250 kVA: UL 60950-1-1: Information Technology Equipment - Safety - Part 1: General Requirements; National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment IBC 2015 (Seismic version)				
Classification in accordance with IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111				
Transport	Pallet jack				

MODELS	MHT 200 UL	MHT 250 UL	MHT 300 UL	MHT 400 UL	MHT 500 UL
<b>INPUT</b>					
Rated voltage [V]	480 three-phase + N				
Frequency [Hz]	45 to 65				
Power factor	> 0.99				
Harmonic current distortion	<3% THDi				
Soft start	0 - 100% in 125" (selectable)				
Frequency tolerance	±2% (selectable from ±1% to ±5% from front panel)				
Standard equipment provided	Back Feed protection; separable bypass line				
<b>BATTERIES</b>					
Type	VRLA, Wet Cell, NiCd on Racks or Cabinet				
Ripple current	Zero				
Recharge voltage compensation	-0.061% x V x °F / -0.11% x V x °C				
<b>OUTPUT</b>					
Nominal power [kVA]	200	250	300	400	500
Active power [kW]	180	225	300	400	450
Number of phases	3 + N				
Rated voltage [V]	480 three-phase + N				
Static stability	±1%				
Dynamic stability	from ±5% to ±1% in 20 ms				
Voltage distortion	<1% with linear load / <3% with non-linear load				
Crest factor [I <sub>peak</sub> /I <sub>rms</sub> ]	3:1				
Frequency stability on battery	0.05%				
Frequency [Hz]	60				
Overload	110% for 60 min; 125% for 10 min; 150% for 1 min				
<b>INFO FOR INSTALLATION</b>					
Weight [lbs/kg]	2138/970	2247/1110	4190/1900	4741/2150	4741/2150
Weight with TCE and maintenance bypass [lbs/kg]	2524/1145	2799/1270	4410/2000 <sup>1</sup>	4961/2250 <sup>1</sup>	4961/2250 <sup>1</sup>
Dimensions (WxDxH) [inches/mm]	39x33.5x75 / 1000x850x1900		59x39.5x75 / 1500x1000x1900		
Dimensions with TCE and manual bypass (WxDxH) [inches/mm]	55x33.5x75 / 1400x850x1900		75x39.5x75 / 1900x1000x1900 <sup>1</sup>		
Remote signals	dry contacts (configurable)				
Remote controls	ESD and bypass (configurable)				
Communications	Double RS232 + dry contacts + 2 slots for communications interface				
Operating temperature	32 – 104 °F / 0 – 40 °C				
Relative humidity	<95% non-condensing				
Color	Black (RAL 9005)				
Noise level at 3.3 ft / 1 m (ECO Mode) [dBA]	68		72		
IP rating	IP20				
Standards	UL Standard 1778: 5 <sup>th</sup> edition; UL 60950-1: Information Technology Equipment - Safety - Part 1: General Requirements; National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A – Radio Frequency; IEC 62040-3; UL 924 and OUST category – Emergency Lighting and power equipment - IBC 2015 (Seismic version)		UL Standard 1778: 5 <sup>th</sup> edition; National Electrical Code (NFPA-70); NEMA; CSA C22.2; ASME; FCC section 15 subsection J class A; IEC 62040-3;		
Classification in accordance with IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111				
Transport	Pallet jack				

<sup>1</sup> Maintenance Bypass Switch – on option.



DATACENTER



E-MEDICAL



EMERGENCY



INDUSTRY



TRANSPORT

# Master HP FC UL

**3:3** 80-200 kVA

Voltage and Frequency Converter  
Input 480 V three-phase, 60 Hz  
Output 400 V three-phase + N, 50 Hz



ONLINE



Tower



Service  
1st start



TAA  
Compliant



## HIGHLIGHTS

- **High efficiency**
- **IGBT-based rectifier technology**
- **Output voltage: 400 V - 50 Hz**
- **Galvanic isolation**
- **High overload capacity**

The high levels of quality, reliability and energy savings offered by the Master HP range of UPS have been extended to include frequency converter 480 V - 60 Hz input / 400 V - 50 Hz output certified as UL, with power ratings from 80 to 200 kVA.

The typical application of such Frequency Converters is the power supply of the loads at 400 V, 50 Hz as for example imported from other countries. The FC units can work with or without battery.

With its double conversion ON LINE technology based entirely on IGBT and digital signal processors (DSP), the Master HP FC UL range ensures maximum critical load protection, with VFI SS 111 classification (Voltage and Frequency Independent) in accordance with IEC EN 62040-3. This range is designed using a new configuration that includes an IGBT sinusoidal input rectifier.

Unique in its design, double conversion technology with galvanic isolated output guarantees a quality power supply that is completely protected from all electrical anomalies at the input.

### COMPLETE GALVANIC SEPARATION

Master HP FC UL feature an output isolation transformer (delta zig/zag type) on the inverter as part of the inverter circuit inside the FC cabinet, providing galvanic isolation between the load and the battery with improved versatility in system configuration, allowing:

- Complete FC output galvanic isolation for critical infrastructures from the battery DC power source;
- No neutral input connection is required at the rectifier input stage;
- No effects to the FC output performance



or reduced impact of the inverter power components whilst supplying specific loads; in addition the inverter transformer minimizes the impact of third harmonic disturbances, prevents the effects of energy back-feed into the inverter when supplying industrial load applications and can supply unbalanced loads.

- High inverter short circuit current to clear faults which occur between phase and neutral on load side (up to three times nominal current).

Output transformer housed within a cabinet which allows for a significant reduction in the footprint and provides space savings.

### ZERO IMPACT SOURCE

The Master HP FC UL features the added advantages of the Zero Impact Source formula offered by an IGBT-based rectifier assembly. This eliminates problems connected with installation in networks with limited power capacity, where the FC is supplied by a generator set or anywhere there are compatibility problems with loads that generate current harmonics. Master HP UL series FC have zero impact on the power supply source, whether it is a mains grid or generator set:

- input current distortion <3%
- input power factor 0.99
- power walk-in function that ensures progressive rectifier start up
- start-up delay function, to restart the rectifiers when mains power is restored if there are several FC in the system.

This provides savings in installation costs via:

- a smaller electrical infrastructure.
- smaller circuit protection devices
- less wiring.

### BATTERY CARE SYSTEM: MAXIMUM BATTERY CARE

Master HP FC UL uses the Battery Care System, which optimises battery performance in order to extend the battery life for as long as possible.

### MAIN FEATURES

- Compact size: e.g.: only 1318 in<sup>2</sup> for Master MHT FC 200 UL
- Reduced weight for transformer based FC
- Double load protection, both electronic and galvanic, towards the battery.

The entire Master HP FC UL range is suitable for use in a wide range of applications.

Thanks to the flexibility of configuration, available options and accessories, it is suitable for supplying any type of load, e.g. capacitive loads such as blade servers, rather than motor drivers or any other critical vertical application. Power supply reliability and availability are ensured for critical applications by distributed parallel configurations of up to 8 units, for redundant (N+1) or power parallel configurations.

### ADVANCED SUPERVISION

Master HP series FC have a front panel mounted graphic display providing FC information, measurements, status updates and alarms in different languages, with wave form displays including voltage/current and providing a kWh reading that can be used to measure IT loads and calculate a Data Center PUE (power usage effectiveness) ratio.

## OPTIONS

### SOFTWARE

PowerShield<sup>3</sup>  
PowerNetGuard

### ACCESSORIES

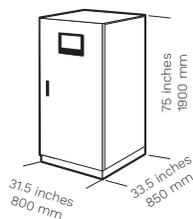
NETMAN 204  
MULTIPANEL  
Multi I/O (Relay Alarm card and generator Interface)

### PRODUCT ACCESSORIES

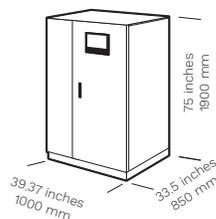
Parallel configuration kit (Closed Loop)  
Fully configured battery systems with appropriate autonomy

## DIMENSIONS

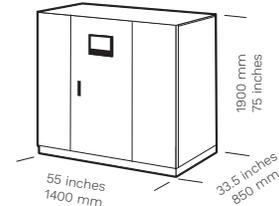
**MHT FC 80 UL  
MHT FC 100 UL**



**MHT FC 125 UL - MHT FC 160 UL  
MHT FC 200 UL**



**MHT FC 125 UL TCE  
MHT FC 160 UL TCE  
MHT FC 200 TCE**



MODELS	MHT FC 80 UL	MHT FC 100 UL	MHT FC 125 UL	MHT FC 160 UL	MHT FC 200 UL
<b>INPUT</b>					
Rated voltage [V]	480 three-phase (+N if needed)				
Frequency [Hz]	45 to 65				
Power factor	>0.99				
Harmonic current distortion	<3% THDi				
Soft start	0 - 100% in 125" (selectable)				
Frequency tolerance	±2% (selectable from ±1% to ±5% from front panel)				
<b>BATTERIES</b>					
Type	VRLA AGM / GEL; NiCd; Li-ion; Supercaps and Flywheel				
Ripple current	Zero				
Recharge voltage compensation	-0.061% x V x °F / -0.11% x V x °C				
<b>OUTPUT</b>					
Nominal power [kVA]	80	100	125	160	200
Active power [kW]	72	90	112.5	144	180
Number of phases	3 + N				
Rated voltage [V]	400 three-phase + N				
Static stability	±1%				
Dynamic stability	from ±5% to ±1% in 20 ms				
Voltage distortion	<1% with linear load / <3% with non-linear load				
Crest factor [I <sub>peak</sub> /I <sub>rms</sub> ]	3:1				
Frequency stability on battery	0.05%				
Frequency [Hz]	50				
Overload	110% for 60 min; 125% for 10 min; 150% for 1 min				
<b>INFO FOR INSTALLATION</b>					
Weight [lbs/kg]	1610/730	1742/790	1852/840	2139/970	2448/1110
Weight with TCE [lbs/kg]	-	-	2205/1000	2525/1145	2800/1270
Dimensions (WxDxH) [inches/mm]	31.5x33.5x75 / 800x850x1900		39x33.5x75 / 1000x850x1900		
Dimensions with TCE (WxDxH) [inches/mm]	-	-	55x33.5x75 / 1400x850x1900		
Remote signals	dry contacts (configurable)				
Remote controls	ESD (configurable)				
Communications	Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols				
Operating temperature	32 – 104 °F / 0 – 40 °C				
Relative humidity	<95% non-condensing				
Color	Black (RAL 9005)				
Noise level at 3.3 ft / 1 m (ECO Mode) [dBA]	65			68	
IP rating	IP20				
Standards	UL Standard 1778: 2 <sup>nd</sup> edition 80 and 100 kVA, 5 <sup>th</sup> edition from 125 to 200 kVA and CAN/CSA C22.2; From 125 to 200 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements; National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A – Radio Frequency; IEC 62040-3				
Classification in accordance with IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111				
Transport	Pallet jack or fork lift				







**Software,  
Accessories and  
Connectivity**



# Software



## PowerShield<sup>3</sup>

SHUTDOWN SOFTWARE



### HIGHLIGHTS

#### Graphic monitoring of UPS and environmental sensor status

PowerShield<sup>3</sup> is a simple but powerful UPS management tool. A graphic version is available for all operating systems.

#### Detailed display of all UPS and environmental sensor parameters

PowerShield<sup>3</sup> provides all the information required for first level diagnostics.

#### Events log and graphic display of main parameters

All changes in UPS operating states are logged, as well as the main physical values and parameters. These constantly recorded values are displayed in graphic format.

#### UPS control programming

This allows you to automate all the actions normally carried out by the user: turning the server on and off, UPS battery test, etc.

#### Block diagram of operation

A display of UPS operation in the form of a block diagram makes the analysis of UPS operating states more intuitive.

PowerShield<sup>3</sup> provides efficient, user-friendly UPS management, displaying all major operational information such as input voltage, applied load and battery charge. The software also provides detailed information on fault conditions and UPS operating states. Developed with a client/server architecture, it is the ideal tool for managing multi-platform network systems.

### FEATURES

- PowerShield<sup>3</sup> free version: supports a single UPS for the operating systems;
- PowerShield<sup>3</sup> full version: supports up to maximum of 32 UPS for all operating systems;
- With sequential and priority-based shutdown, PowerShield<sup>3</sup> provides unattended shut-down of all networked PCs, saving any active work on the most widely used applications. Users can define the shutdown priorities for the various computers in the network and can also customise the procedure;
- With multi-platform compatibility, PowerShield<sup>3</sup> uses the TCP/IP communications protocol to achieve standardised management and monitoring across the widest possible range of platforms. This makes it possible to monitor computers with different operating systems from a single console, for example monitoring a UNIX server from a PC running Windows and also connecting to UPS located in different geographical areas using dedicated networks (intranets) or the Internet;
- With event scheduling, PowerShield<sup>3</sup> users can program their own shutdown procedures, detailing power-off and power-up scenarios to increase system security and save energy;
- With messages management, PowerShield<sup>3</sup> keeps users constantly informed about the status of UPS and environmental sensors, either locally or via network messages. A list can also be defined of users who should receive e-mails, faxes, voice messages and SMS messages when faults or sudden mains power supply failures occur;
- Integrated SNMP agent: PowerShield<sup>3</sup> features an integrated SNMP agent for UPS management which can send all the information required and generate traps using the RFC1628 standard

and environmental sensors;

- Secure, easy to use and connect, communication is now password protected to ensure UPS system security. Using the new discovery/ browsing function, all UPS connected to a protected computer and/or LAN can be displayed in a list format for monitoring. In the absence of a LAN connection, support is provided for modem-based communication.

### DEVELOPED FOR VIRTUALISED SYSTEMS

PowerShield<sup>3</sup> permits to initiate live migration of virtual machines (VM) to automatically and transparently migrate VMs during power disturbance to protected devices by UPS with migration systems such as Microsoft Live Migration. PowerShield<sup>3</sup> can monitor and manage UPS either inside or outside the Data Center. Can also measure power consumption to help calculate power usage effectiveness (PUE), the standard metric utilised for gauging data center power efficiency.

### SUPPORTED OPERATING SYSTEMS

- Windows 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V;
- Microsoft Hyper-V and Microsoft SCVMM™;
- Linux on X86, X86\_64 and IA64 processors;
- Mac OS X, Citrix® XenServer and Xen® open source platforms;
- The most common UNIX operating systems such as: IBM AIX, HP, SUN Solaris INTEL and SPARC, SCO Unixware and Open Server, Silicon Graphics IRIX, Compaq Tru64 UNIX and DEC UNIX, Open BSD UNIX and FreeBSD UNIX, NCR UNIX;
- HP OPEN VMS.

**PowerShield<sup>3</sup> is available for download at [www.rielloupsamerica.com](http://www.rielloupsamerica.com)**





# PowerNetGuard

INVENTORY MANAGER SOFTWARE

## HIGHLIGHTS

### Graphic monitoring of ups and environmental sensor status

PowerNetGuard is a simple but powerful UPS management and display tool. A graphic version is available for all operating systems.

### Detailed display of all UPS and environmental sensor parameters

PowerNetGuard provides all the information required for first level diagnostics.

### Events log and graphic display of main parameters

All changes in UPS operating states are logged, as well as the main physical values and parameters. These constantly recorded values are displayed in graphic format.

### Centralised Management

PowerNetGuard is the ideal solution for managing all UPS in an infrastructure using a single application. With this one application you can monitor and manage all your UPS, ensuring prompt warnings in the event of faults or malfunctions.

### Support for third party UPS

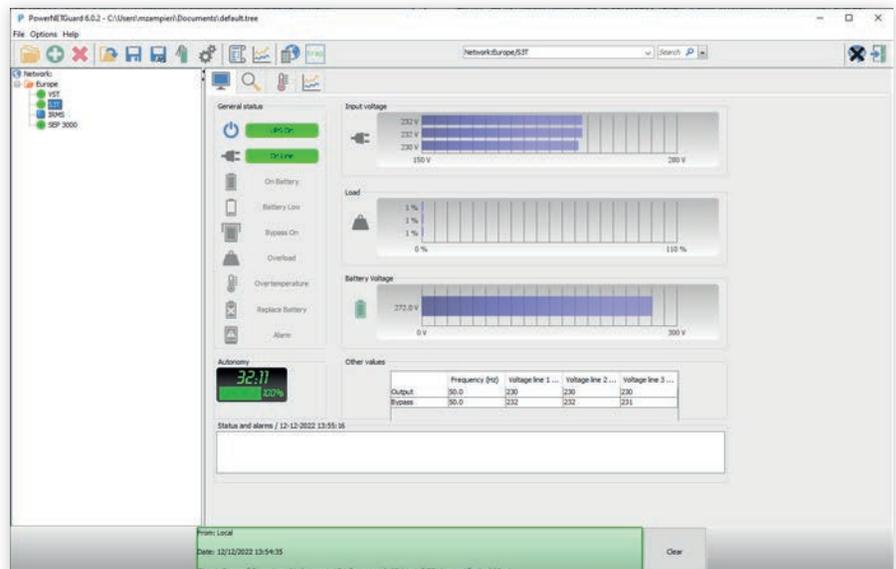
PowerNetGuard also allows you to manage UPS made by other manufacturers via SNMP using their own network boards. This allows you to centralise the management of the UPS fleet into a single system without the need for many different applications, simplifying management and use.

PowerNetGuard software centralises UPS management using network interface (SNMP) communications. It is ideal for Data Center EDP managers and medium to large-sized networks. Using the RFC1628 Management Information Base (MIB), it ensures standardised management for all UPS compliant with this worldwide standard.

## FEATURES

- Centralised control of remote UPS via Ethernet with SNMP v1 and v3 protocol;
- Multi-level display of geographical areas, building plans, maps, etc.;
- Multi-user access with various security levels;
- Compatible with NetMan and RFC1628 standard SNMP agents;
- Creation of graphs of input and output values and data back-up to file;
- Alarm notifications via e-mail and SMS
- Windows 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V.

**PowerNetGuard is available for download at [www.riellupsamerica.com](http://www.riellupsamerica.com)**



# Accessories



## NetMan 204 NETWORK CARD



TAA  
Compliant

The NetMan 204 network agent allows UPS directly connected over LAN 10/100 Mb connections to be managed using the main network communication protocols (TCP/IP, HTTP and SNMP). It is the ideal solution for the integration of UPS over Ethernet networks with Modbus/TCP or BACNET/IP protocols. It was developed to integrate UPS into medium-sized and large networks, to provide a high level of reliability in communication between the UPS and associated management systems.



syneto



### FEATURES

- 32 bit RISC processor;
- Compatible with 10/100 Mbps Ethernet and IPv4/6 networks;
- Wifi ready;
- Compatible with PowerShield<sup>3</sup> and PowerNetGuard;
- SNMP v1 and v3 with RFC1628 for PowerNetGuard and NMS connection;
- SNMP v1, v2 and v3 with RFC3433 for the management of environmental sensors;
- HTTPS for UPS control via web browser;
- SMTP for alarm notifications and UPS status updates via email;
- Ldap and Active Directory integration for centralised authentication mechanism support;

- Permits to initiate live migration of virtual machines (VM) to automatically and transparently migrate VMs during power disturbance to protected devices by UPS with migration systems such as VMware and vMotion™. NetMan 204 can monitor and manage UPS either inside or outside the data center.
- Modbus/TCP;
- BACNET/IP;
- Maximum expandability;
- USB host for Pendrive USB connection;
- Events log and data management;
- Wake-on-LAN management for starting computers via TCP/IP network;
- Other standards: DHCP, DNS, RARP, FTP, NTP, ICMP, IGMP;
- Management of environmental sensors;
- Configurable via Telnet or SSH sessions, and web;
- Firmware upgradeable via microSD and web browser.



## Environmental sensor FOR NETMAN 204



TAA  
Compliant

The NetMan 204 environmental sensors is able to monitor and record environmental conditions, as well as activities in protected areas and the area where the UPS is installed. The environmental sensors allow management and control to be extended to cover the area around the UPS, monitoring the temperature and humidity and driving cooling fans or locks. Values are provided via Internet, SNMP and via PowerShield<sup>3</sup> software. PowerShield<sup>3</sup> can be used to

manage sensor operating states in order to send messages. Refer to PowerShield<sup>3</sup> software documentation for further information. NetMan 204 can manage up to 6 separate sensors. Environmental sensors are quick to install thanks to their small footprint and they do not require a separate external power supply. Thanks to the self-learning sensors, configuration is also rapid and intuitive.



### Available sensor:

-55 +60 °C Temperature 0-100% humidity Sensor and I/O digital 0-12 Vdc In, 1 A max Out at 48 Vdc Sensor.



## NetMan 104

### NETWORK CARD

The NetMan 104 network agent allows UPS directly connected over LAN 10/100 Mb connections to be managed using the main network communication protocols (TCP /IP , HTTP HTTPS, SSH, SNMPv1, SNMPv2 and SNMPv3). It was developed to integrate UPS into medium-sized and large networks, to provide a high level of reliability in communication between the UPS and associated management systems.

#### FEATURES

- Allows control and monitoring of multiple UPSs through RJ-45 ethernet port;
- Built-in web server;
- Real-time dynamic graphs of UPS data (voltage, frequency, load level, battery level);
- Warning notifications via audible alarm, broadcast, mobile messenger, e-mail and SNMP traps;
- Historic data log stored in centralized PC database;
- Simple firmware upgrade with one click
- Password security protection and remote access management;
- Supports optional environmental monitoring detector for temperature, humidity and smoke.



## MultiCom 184

### CONTACTS - RSD BOARD

MultiCom 184 provides a set of relay contacts to provide UPS alarm and status indication. The contacts are connected through DB9 or terminal connections. Signal contacts include Remote Shut Down (RSD) command and On Battery, On Bypass, General Alarm, UPS failure and Battery low warnings with potential free contacts on normally close or normally open contacts.

#### FEATURES

- Max. current 1 A at 250 V
- Signal-contact customisation
- Normally Open or Normally Close configuration for each contact



## MultiCom 384

### CARD - RELAY I/O INTERFACE

The MultiCOM 384 provides a set of relay contacts for managing UPS alarm notifications and operating states. The board has two removable terminal boards. One of these terminal boards includes the ESD (UPS Emergency Shut Down) and RSD (Remote Shut Down) signals. The board also provides the possibility of associating Battery Working, Bypass, Alarm and Battery



TAA  
Compliant

Low warnings with potential free contacts on normally close or normally open contacts.

#### FEATURES

- Max. current 3 A at 250 V
- Signal-contact customisation
- Normally Open or Normally Close configuration for each contact



## MultiCom 392

### CARD - RELAY 3 IN/8 OUT

MultiCOM 392 is a communications card that provides 8 configurable dry contact outputs and up to 4 inputs to assist with monitoring and control of the UPS. Device is compatible with a broad range of



TAA  
Compliant

Riello UPS models, including Multi Power, Multi Sentry, Sentryum, and our Central Supply Systems (CSS).



## I/O Relay card

### EXPANSION BOARD

The I/O expansion board for the Master range is equipped with:

- 6 outputs with NC/NO potential-free contacts (250 V/5 A), electrically isolated from each other and from other circuits
- 2 self-powered inputs.



TAA  
Compliant

Each output or input can be configured with different meanings, using the associated menu.



## Multi Panel

### REMOTE DISPLAY INTERFACE

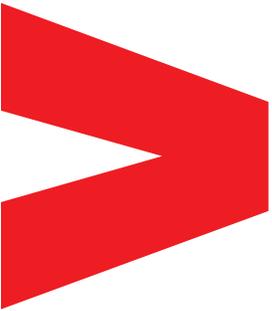
The Multi Panel is a remote monitoring device that can provide a detailed UPS status overview in real time. This device is able to display mains power, output and battery readings as well as UPS operating states. The high visibility graphic display supports English, Italian, German, French, Spanish, Russian, Chinese and many other languages. It has 3 independent serial ports, one of which allows for UPS monitoring via the MODBUS/JBUS protocol (on either an RS485 or RS232 serial line). The other independent

serial lines can be used to connect devices such as the NetMan 204 or a PC running PowerShield<sup>3</sup> software.

#### FEATURES

- High visibility LCD with graphic functions
- Management of three independent serial lines;
- Port configuration for MODBUS/JBUS as RS232 or RS485;
- Suitable for integration with the main BMS management programs;
- Firmware upgradeable via serial port.





# Connectivity

## Index of configurations

Connecting a UPS to other devices, sensors, computers and other specific devices, means on the one hand allowing the user to monitor UPS operating parameters and prevent critical situations, and on the other hand provides the UPS with input parameters from the working environment. By processing these parameters the

UPS is able to activate/deactivate itself, communicate its status and much more. This brief overview summarises some of the basic connectivity configurations, grouped according to the end purpose and situation surrounding each case.

- **Point to point connections;**
- **Multipoint connection;**
- **Connection for UPS in parallel setup;**
- **Field bus connections;**
- **Bus connections over Ethernet;**
- **Field bus connections;**
- **Serial bus connections.**

## POINT TO POINT CONNECTIONS



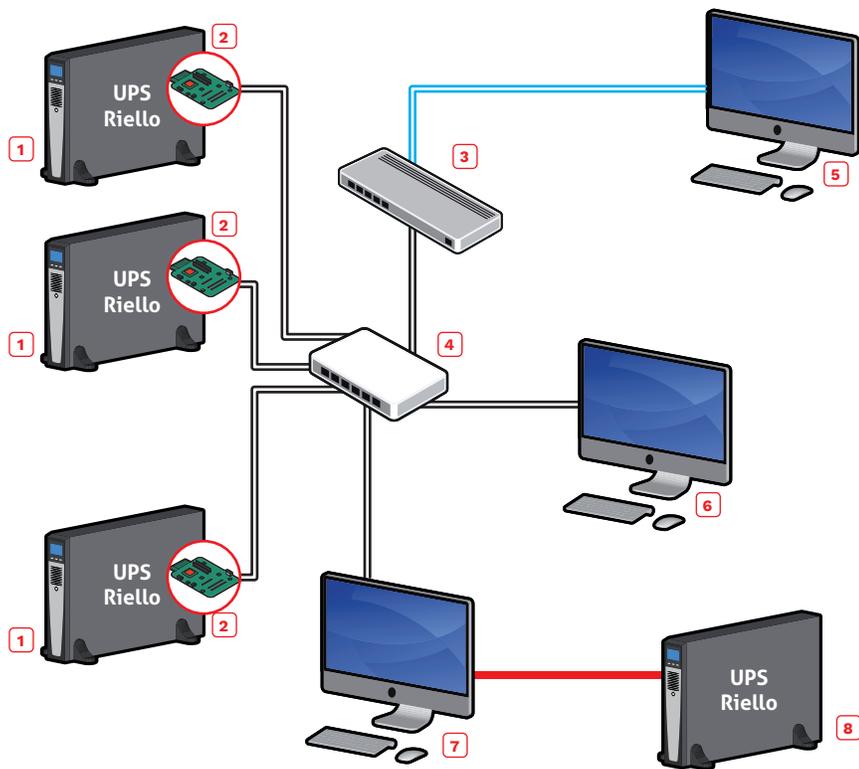
Controlling the UPS from 1 workstation

- 1 UPS connected to load
- 2 Local computer with PowerShield<sup>3</sup> version FREE

— USB or RS232



## DISTRIBUTED CONNECTION (MULTIPOINT)

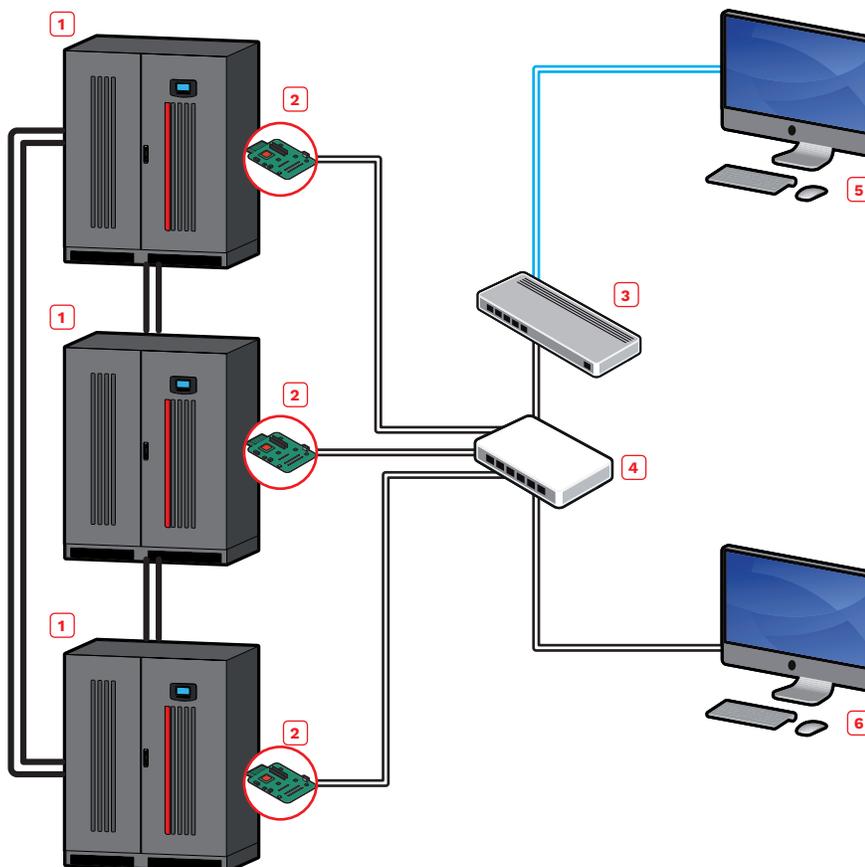


Connection with more than 1 UPS.  
The FULL version of PowerShield<sup>3</sup> software is required as well as a NetMan 204 communication board on each UPS.

- 1 UPS connected to load
- 2 NetMan 204 board
- 3 Firewall
- 4 Switch
- 5 Remote computer connected via web
- 6 Local computer
- 7 Local computer that controls the UPS (8) via USB or RS232, and UPS (1) via LAN and Ethernet
- 8 UPS connected to load

— USB or RS232  
— Ethernet  
— World Wide Web

## CONNECTION FOR UPS IN PARALLEL SETUP

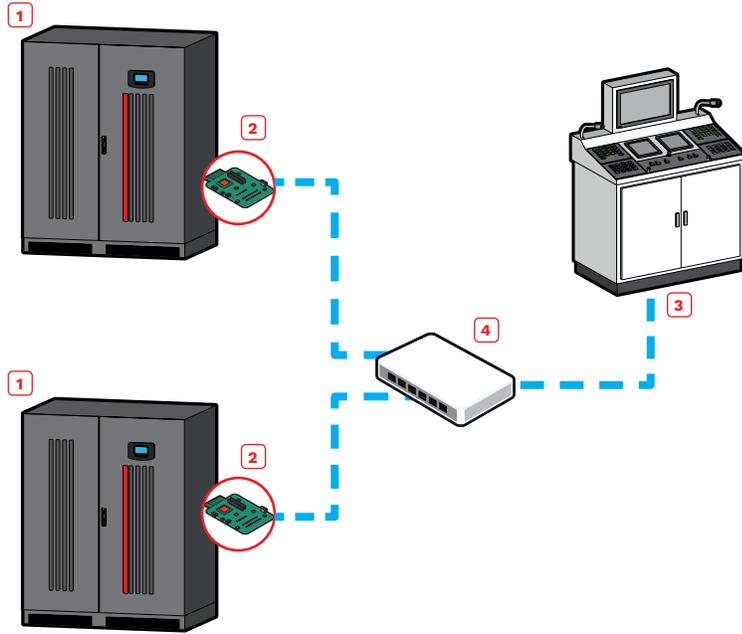


The FULL version of PowerShield<sup>3</sup> software should be used for managing setups with several UPS installed in parallel, and each UPS must have a NetMan 204 board installed.

- 1 UPS in parallel setup connected to the load
- 2 NetMan 204 board
- 3 Firewall
- 4 Switch
- 5 Remote computer connected via web
- 6 Local computer

— Ethernet  
— World Wide Web  
— Parallel setup bus

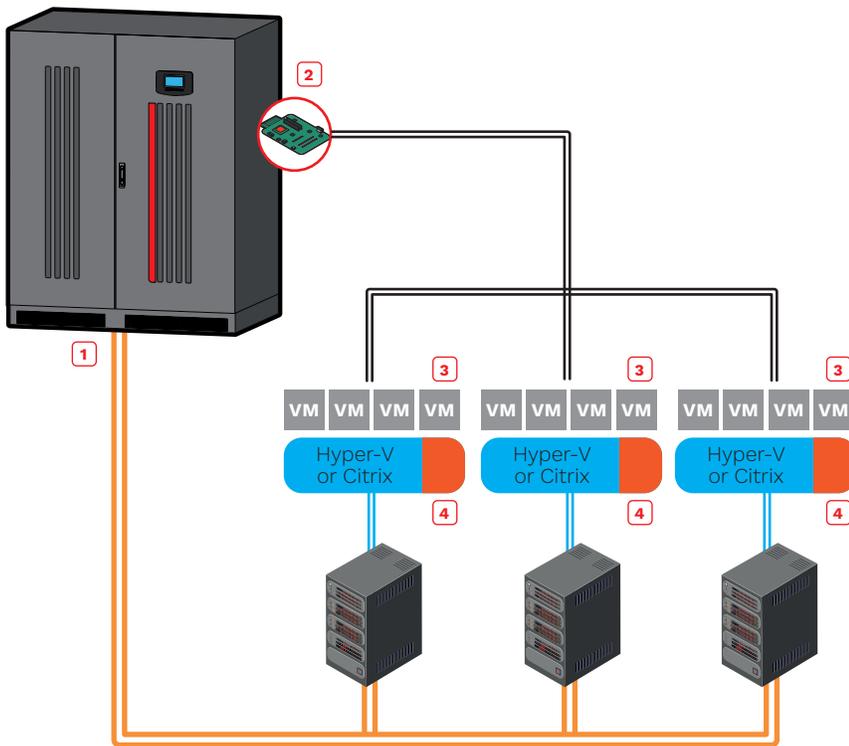
## FIELD BUS CONNECTION OVER ETHERNET



For UPS management in industrial or civil environments requiring Modbus protocol communication over Ethernet.

- 1 UPS connected to load
  - 2 NetMan 204 board
  - 3 SCADA management system
  - 4 Switch
- Modbus / TCP over Ethernet

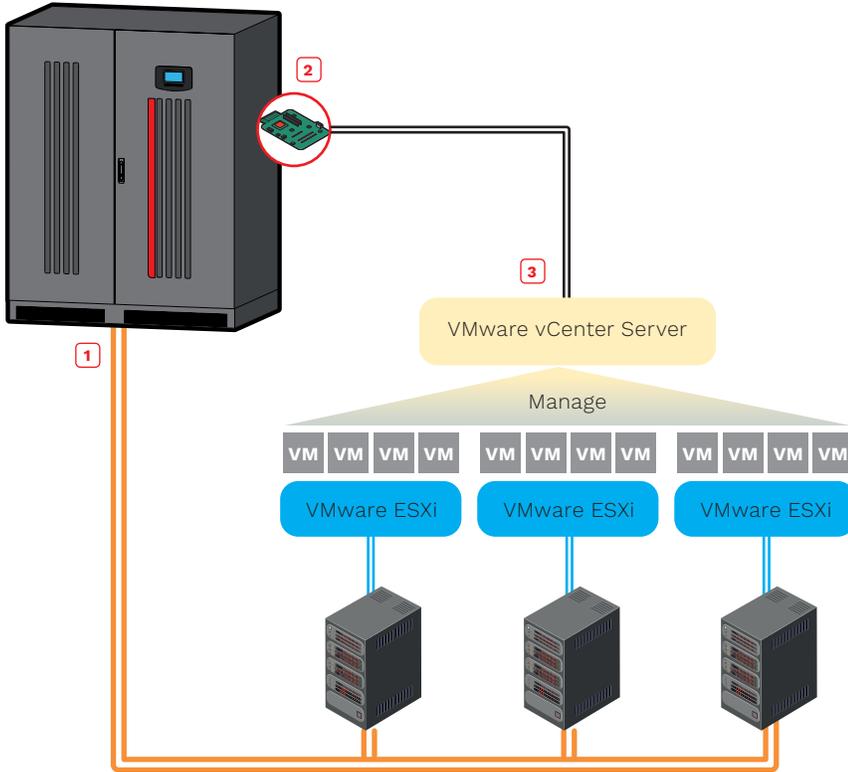
## POWERSHIELD<sup>3</sup> ON VIRTUALIZED SYSTEMS: MICROSOFT HYPER-V; CITRIX



PowerShield<sup>3</sup> software should be used for managing setup with UPS, a specific script to shut down the virtualized system must be used, UPS must have a NetMan 204 board installed.

- 1 UPS
  - 2 NetMan 204 board
  - 3 Virtualized system
  - 4 PowerShield<sup>3</sup>
- Ethernet  
— Power connection

## NETMAN 204 ON VIRTUALIZED SYSTEMS: WMWARE ESXi



NetMan 204 should be used for managing Esxi hosts and vCenter servers, enabling you to manage your virtual network to perform shutdown or live migrations of active virtual machines as well as shutdown of physical hosts with delay and priority.

- 1 UPS
- 2 NetMan 204 board
- 3 Virtualized system

— Ethernet

— Power connection



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Product photos are purely indicative. Due to technical improvements and/or changes in regulatory standards, product specifications are subject to change without notice.

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