



**Your** Global Partner

**GUTOR**

by Schneider Electric

# Global partner

## Our company

GUTOR is the leading international manufacturer of uninterruptible power supply (UPS) systems for industry. The company's head office is in Wettingen (Switzerland), close to Zurich airport. GUTOR has been part of Schneider Electric SA since 2007.

Schneider Electric SA is a global specialist in energy management, providing solutions for using energy safely, reliably, efficiently and productively. Schneider is number one worldwide in the UPS market, and has over 120 000 employees in 120 countries.

Together with strategic partners, GUTOR offers a global business and service network. There are branches in Brazil, China, Germany, India, Japan, Malaysia, Mexico, Russia, Saudi Arabia, the United Arab Emirates and the USA.

## Our focus

GUTOR has designed its UPS systems primarily to satisfy the requirements of industries such as oil and gas, petrochemical, chemical, and power generation.

## > "Our focus is to ensure absolute safety for your business"

These industries all share stringent requirements, such as:

- > Robust equipment that can withstand harsh environmental conditions
- > High degree of customization
- > Absolute reliability and highest quality

Our UPS systems satisfy the strict safety requirements of our most demanding customers, including nuclear power plants. GUTOR systems are qualified according to the IEEE standard as "Category 1E material", and often undergo seismic and environmental qualifications according to accepted procedures.

## Our Production Facilities

GUTOR operates three production facilities to ensure the fastest possible delivery time to our customers worldwide.

Our flagship factory is located in Switzerland. In 2008 we opened a second, fully fledged facility in Kuala Lumpur, Malaysia. While our Swiss facility includes a competency center for nuclear applications, the Malaysian factory ensures a minimal lead time, especially for our customers in Asia and the Middle East. We're proud to deliver our first-class solutions from our Malaysian facility to many of our international customers, including BP, Chevron, Chiyoda, Conoco Phillips, Dow Chemical, Exxon Mobil, GASCO, KNP, KOC, Petro Vietnam, PETRONAS, Qatar Petroleum, Qatargas, Shell, Sabic, Saudi Aramco, Total and many others.

Since 2007, GUTOR's China factory located in Beijing has supplied systems for mining, power generation, chemical and oil & gas applications in China. The factory is also approved to supply nuclear facilities, and 2011 saw the first system shipped to a Chinese nuclear plant.

All GUTOR production facilities are ISO 9001 certified. In addition to our guaranteed high quality, our facilities ensure our ability to handle large international projects while having the capacity to address smaller projects at the same time.

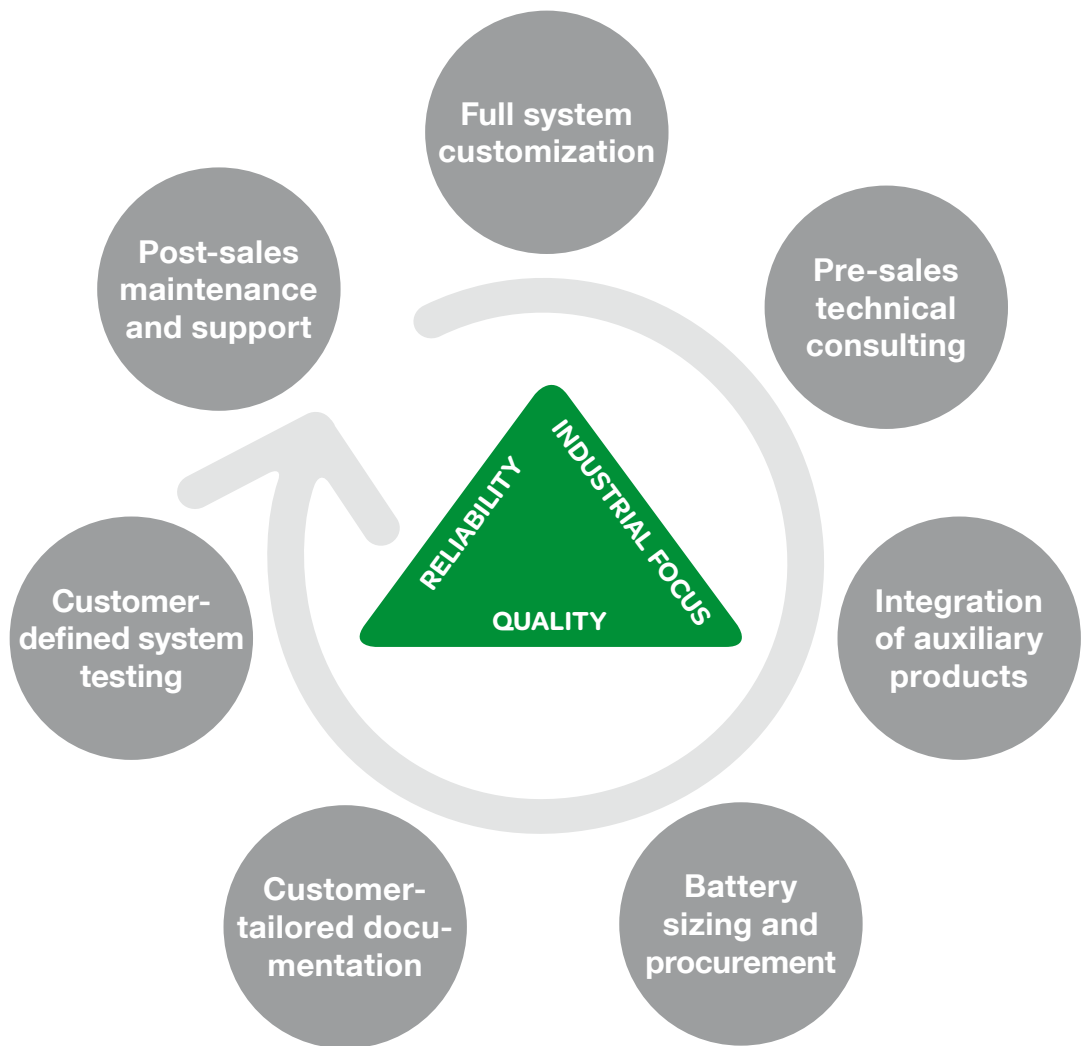
> “Our mission is to supply customized, engineered, high-quality solutions and services to secure the electrical power supply in critical industrial applications.”

GUTOR	Switzerland	Malaysia	China
R&D	•	•	
Sales	•	•	•
Design & Engineering	•	•	•
Project Management	•	•	•
Manufacturing	•	•	•
Testing	•	•	•
Training Center	•	•	
Nuclear Competence Center	•		
Service Competence Center	•	•	•
ISO 9001 certified	•	•	•

# Gutor Full Solution Approach

At the core of every project we deliver to customers lies a finely engineered GUTOR UPS system renowned worldwide for its reliability, quality, and ability to withstand harsh industrial environments. Alongside the UPS system itself, our customers choose GUTOR for what comes with it – what we call the GUTOR Full Solution Approach.

> At GUTOR, every step of the process – from pre-sales and design through to final testing and after-sales services – is custom-tailored to meet your specific needs.



For more information visit [www.gutor.com](http://www.gutor.com)

# Your Business



## Oil & gas

In the oil & gas industry, secure power means more than just keeping business operations running – an interruption in power can oftentimes endanger the life of workers and have serious environmental consequences.

GUTOR has considerable experience in serving the oil & gas market – it has been our core market for over 40 years. In this time we have developed a deep understanding of our customers' requirements and have built our organization and designed our products with these requirements in mind. We offer our customers:

- > Secured power solutions and UPS systems tailored to each customer's individual requirements
- > Consulting on technical matters, including battery sizing and selection as well as the overall topology of the electrical system

- > A global organization able to handle large international projects
- > Full compliance and expertise in various standards & norms, including company-specific ones such as Shell DEP
- > A global service team capable of reaching the most remote locations within a guaranteed response time

The operational areas are various:

- > Offshore installations
- > Pipeline control centers
- > Gas collection points
- > Production sites
- > LNG & GTL sites
- > Pumps
- > Control equipment
- > Fire-extinguishing systems
- > Emergency lighting
- > Air conditioning and other important installations



## Nuclear Industry

The nuclear industry is a very demanding market in which equipment supplied must precisely satisfy technical specifications, quality assurance, and documentation requirements. The equipment must also meet the highest standards of performance and reliability. For this reason, GUTOR has assembled a team of highly skilled and experienced engineers dedicated to delivering customized solutions that meet the specific needs of our nuclear customers. The GUTOR Nuclear Team has gained a wealth of expertise from serving the worldwide nuclear market for over 30 years.

Our Nuclear Team supports our customers by:

- > Helping size systems
- > Explaining features, benefits, and options
- > Conducting field surveys for the replacement of system equipment
- > Providing budgetary estimates and preliminary drawings
- > Managing all project aspects, from design reviews through the commissioning of systems

GUTOR systems designed for nuclear plants:

- PxW – Double conversion UPS
- WxW – Inverter system
- SDC – DC charger

**GUTOR's extensive experience in the nuclear market includes:**

- > Over 1200 systems supplied to nuclear plants
- > Systems supplied to over 100 reactors in 20 different countries
- > Systems supplied to various reactor types, such as ABWR, AP1000, BWR, Candu PHWR, CPR, EPR, PHWR, PWR and VVER

### Power generation

Secure power solutions are of utmost importance in power generation plants, where loss of power can lead to costly interruptions in service as well as threats to human life. As GUTOR has been supplying the power generation industry with fully customized products for over 40 years, we have developed a deep understanding of our customers' requirements.

GUTOR offers secure power solutions to coal and gas-fired power plants as well as hydro-electric, thermal, and geo-thermal plants. GUTOR incorporates complementary equipment into the

core system to ensure a seamless solution, tailored to our customers' needs.

GUTOR-designed solutions for power plants include:

- > Inverters
- > DC chargers
- > Switch mode power supplies
- > UPS
- > Batteries
- > DC-DC converters
- > Stabilizers
- > Special distributions

### Other Industries

GUTOR's expertise extends to other industries such as:

- > Transportation
- > Mining
- > Water Treatment / Desalination
- > Other industrial applications

These applications rely on a safe and stable power supply. They also demand a high degree of flexibility, and the ability to operate in harsh environmental conditions. GUTOR understands these needs well, and our solutions ensure that production processes and safety systems run safely and smoothly.

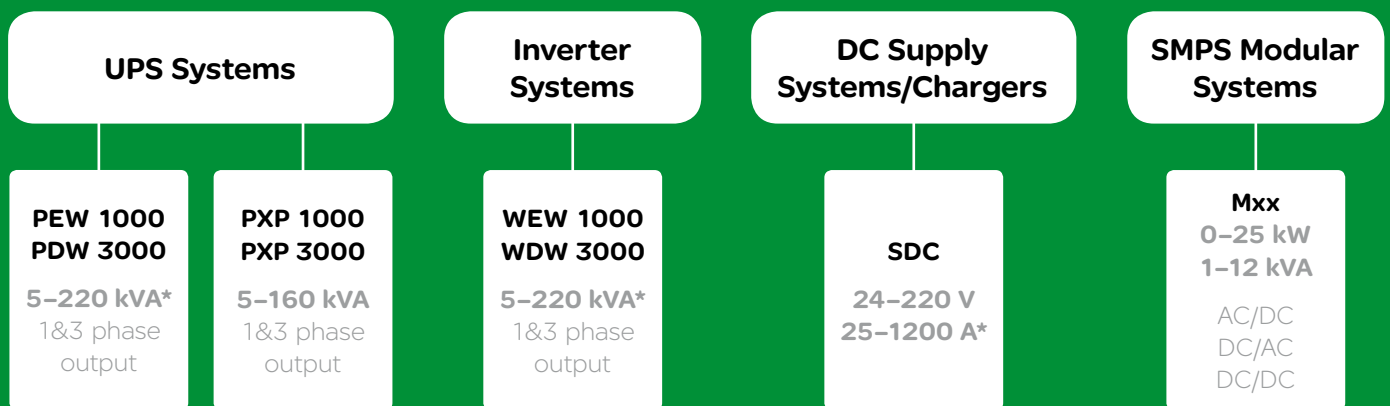


# Our Products and Solutions

GUTOR stands for high quality and absolute reliability. Our products are the result of long lasting experience, expertise, and a careful attention to quality.

**“Engineered to withstand the toughest environments”**

The GUTOR product range is designed to serve industrial applications. Our approach is Engineered To Order (ETO), meaning every system is finely engineered and tailored to meet the explicit requirements of the project as specified by the customer.



\*higher ratings on request

# Our proven technology – xxW platform

## 1 platform

With over 20000 systems in operation today, Gutor's flagship xxW platform is renowned worldwide for its unparalleled reliability

## 3 products

- > PxW UPS
- > SDC Rectifier/DC Charger
- > WxW Inverter

**PxW UPS**  
PEW 5–200 kVA (single phase)  
PDW 10–220 kVA (three phase)

**SDC Rectifier / DC Charger**  
24–220 VDC  
25–1200 A

**WxW Inverter**  
WEW 5–200 kVA (single phase)  
WDW 10–220 kVA (three phase)

## ∞ possible solutions

The xxW platform was design with flexibility in mind – combined with GUTOR's Engineered to Order approach, systems are highly customized to meet every customer requirement, no matter how specific.

### What our customer can rely on...

- > Proven reliability and flexibility to meet the most challenging requirements
- > Approved for Nuclear Power Plants (NPP)
- > Robust mechanical design to withstand harsh environmental conditions
- > 20 years of proven field experience in the most demanding environments





# Our next generation platforms

## PXP – Industrial AC UPS with PFC rectifier



- > **Reduced footprint**
- > **PFC rectifier** – Low THDi, High Efficiency
- > **Industrial design** for harsh environments
- > **Flexible interfacing** including freely programmable alarms and meters, web interface and various communication protocols
- > **World class reliability** with high degree of built-in redundancy and years of field experience
- > **Modular architecture** for easier serviceability and reduced spare parts stock
- > **Transformerless** option to further reduce footprint and increase efficiency

5–160 kVA  
1 or 3 phase output



# Mxx – Industrial AC and DC SMPS modular platform



- > **N+1 redundancy** – One (N+1) or more (N+X) redundant system modules
- > **Hot plug-in technology** – Modules can be replaced quickly and easily, leading to a low Mean Time To Repair (MTTR)
- > **Scalability and flexibility** – Different types of modules (i.e. rectifiers, inverters, DC/DC converters, switches) can be scaled, combined and added to a system – making the Mxx platform highly flexible and able to meet changing requirements
- > **CAN-bus communication** – The Mxx platform links all modules and devices to one CAN-bus, which is highly robust and immune to interference. The CAN-bus handles all system communication such as control tasks, measurements, and alarms. In this way all devices, including rectifiers, inverters, controllers and switches can exchange information and react to one another
- > **Advanced monitoring and diagnostics** – All alarms and measurement displays are easily configurable via the USB interface. Data can be monitored via an alphanumeric display, LED signals, isolated relay outputs, and the SNMP web interface

## MDC Rectifier

**Output voltages:** 24, 48, 110, 125, 220 VDC  
**Output power:** 0.5 to 25 kW  
**Features**

- > PFC rectifier (Input PF > 0.99, THDi < 5 %)
- > Input over voltage protection
- > High power density
- > Backfeed protection through integrated decoupling from the DC bus
- > Optimal, temperature-controlled cooling concept
- > Compact 19" design

## MXP AC UPS

**Output power:** 1 to 12 kVA  
**1 or 3 phase output**  
**Features**

- > PFC rectifier (Input PF > 0.99, THDi < 5 %)
- > Redundant synchronization bus for increased reliability
- > Input over voltage protection
- > High power density
- > Excellent sinusoidal output
- > Optimal, temperature-controlled cooling concept
- > Compact 19" design

## MXW Inverter

**Output power:** 1 to 12 kVA  
**1 or 3 phase output**  
**Features**

- > Excellent overall efficiency
- > Redundant synchronization bus for increased reliability
- > Resistant to sustained short circuit
- > High power density
- > Excellent sinusoidal output
- > Optimal, temperature-controlled cooling concept
- > Compact 19" design

## MDD DC/DC Converter

**Output voltages:** 24, 48, 110, 125, 220 VDC  
**Output power:** 0.5 to 25 kW  
**Features**

- > Wide input voltage range
- > Input over voltage protection
- > High power density
- > Optimal, temperature-controlled cooling concept
- > Compact 19" design



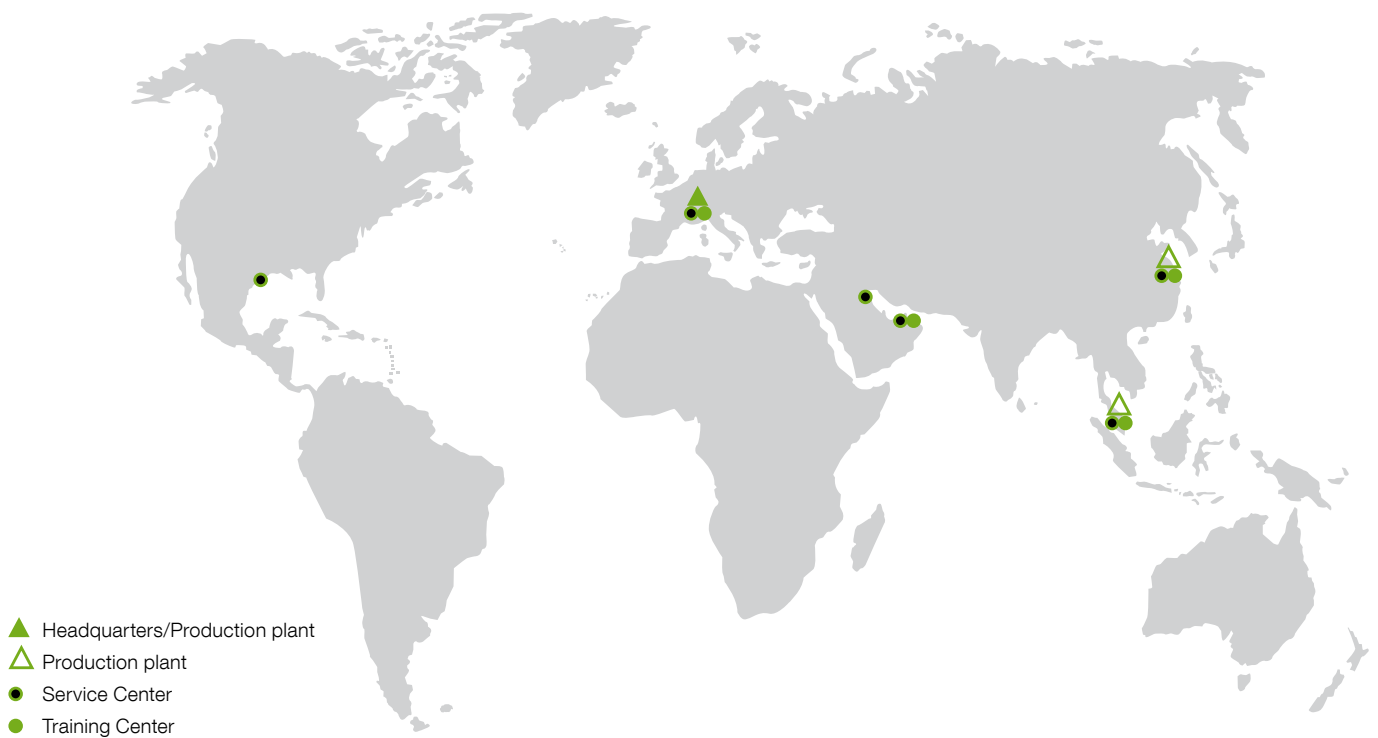


## Customer service

### Our comprehensive range of services

As one of the world's leading UPS manufacturers, we not only focus on providing quality products but also make sure that customers can count on professional and comprehensive support from day one onward. Particularly with regard to after-sales support, we attach great importance to dedicated and reliable customer service.

"GUTOR's worldwide service network – professional and comprehensive support starting from day one."



Several Service Partner worldwide.  
For more information visit [www.gutor.com](http://www.gutor.com)

### Service contracts

A service contract is a formal, mutually agreed, binding contract between GUTOR and a client, in which GUTOR makes a commitment to provide services over a fixed time period, and at fixed rates / a yearly fee. These services include technical support, preventive maintenance and repair.

What service contracts are available?

GUTOR offers three standard service contracts.

These are:

- > “call-off” service contract
- > “preventive-plus” service contract
- > “preventive-ultra” service contract

Benefits of having a service contract

- > Ease of mind
- > Expert services
- > Continuous customer support
- > Reduced risk of system failure
- > Easy organization of maintenance
- > Facilitated access to site  
(yearly site passes and security permits)
- > Prompt service & sales response time
- > Special service and training rates
- > Professional recommendations made by the OEM (new products, upgrades...)
- > Client’s maintenance crew maintains up-to-date operational expertise

### Training courses

Uninterruptible Power Supply (UPS) systems from GUTOR are designed according to individual customer wishes. Technical staff servicing and maintaining these systems receive customized training based on specific requirements in relation to those particular systems installed on-site.

Training courses are conducted in centers located in Switzerland, Malaysia and Abu Dhabi (UAE), both of which are furnished with up-to-date audio-visual aids and test equipment.

### Battery replacement

The lifetime of batteries varies between 4 and 20 years depending on the type of the battery, environment, and degree of maintenance. Lack of maintenance leads to a shorter lifetime. In this case, the battery bank can no longer supply power to the load, and must therefore be replaced. The best way to detect weak batteries by performing regular battery discharge tests.

### Updates & upgrades

GUTOR offers these updates & upgrades:

- > Software update (to latest version)
- > Battery Management system (BMS)
  - Monitoring of individual battery cells
  - Charging of individual battery cells
  - Early detection of weak battery cells
- > Network management card (NMC)
  - Remote monitoring of UPS system
  - Remote troubleshooting and analysis

GUTOR may conduct on-site training courses at the request of customer provided that a training system is installed there. Live systems cannot be used for training purposes.

GUTOR offers three different training levels\*:

- Level 1: Operation
- Level 1–2: Maintenance
- Level 1–3: Service

**Level 1  
Operation**

**Operate a system**

**Level 1 – 2  
Maintenance**

**Maintain a system**

**Level 1 – 3  
Service**

**Trouble shooting**

\*For further course information please check our training booklet



### **Installation & commissioning**

This process ensures the correct installation and functionality of UPS systems and batteries. The main tasks include visual inspection of UPS systems & batteries, a functional check of the UPS, and a battery discharge test.

### **Why request a GUTOR engineer?**

- > Receive service from a trained and certified specialist with years of experience
- > Receive proper documentation and reports
- > Secure the continuity of GUTOR's warranty

### **Spare parts**

What are spare parts?

Spare parts are items of inventory that are used for the repair or replacement of failed or expired components, in order to ensure continued operation of the system.

These parts would cause a system shutdown upon failure

- > Consumables: parts having a limited utility lifetime that must be replaced at specific intervals, during preventive maintenance

Which spare parts are required?

Spare parts fall under three major categories:

- > Start-up spares: fuses and parts recommended to be available during commissioning
- > Critical spares: recommended for stock, as they are essential for trouble shooting and repair.

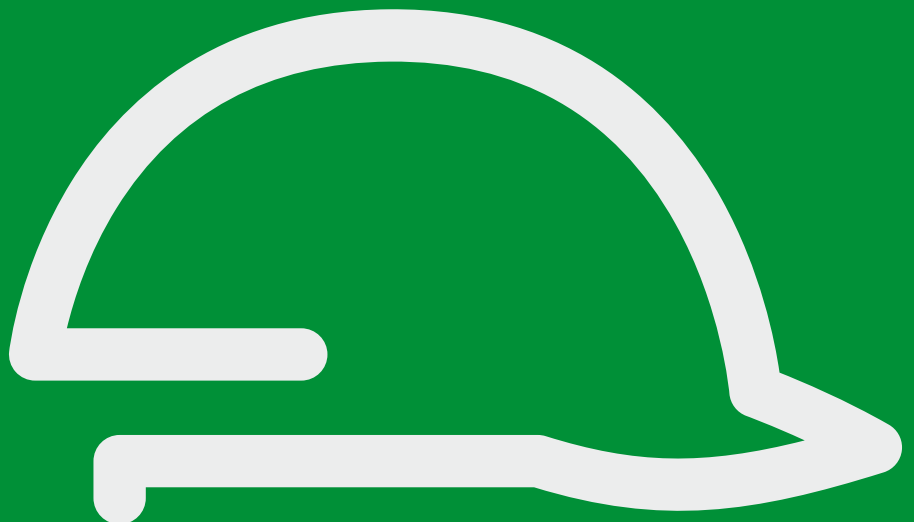
What are the benefits?

- > Downtime of a faulty system is minimized
- > Round-the-clock peace of mind
- > Inventory replenishment can be reduced

### **Preventive maintenance**

Preventive maintenance entails essential services, performed to a regular schedule, to ensure the safe and reliable operation of UPS systems.

This includes visual and functional checks made on the system and battery. It also necessitates the replacement of parts with a limited utility lifetime.







**GUTOR**

by **Schneider** Electric

**GUTOR Electronic LLC**

Hardstrasse 72–74

5430 Wettingen

Switzerland

P +41 (0)56 437 34 34

F +41 (0)56 437 34 44

[gutor.info@schneider-electric.com](mailto:gutor.info@schneider-electric.com)