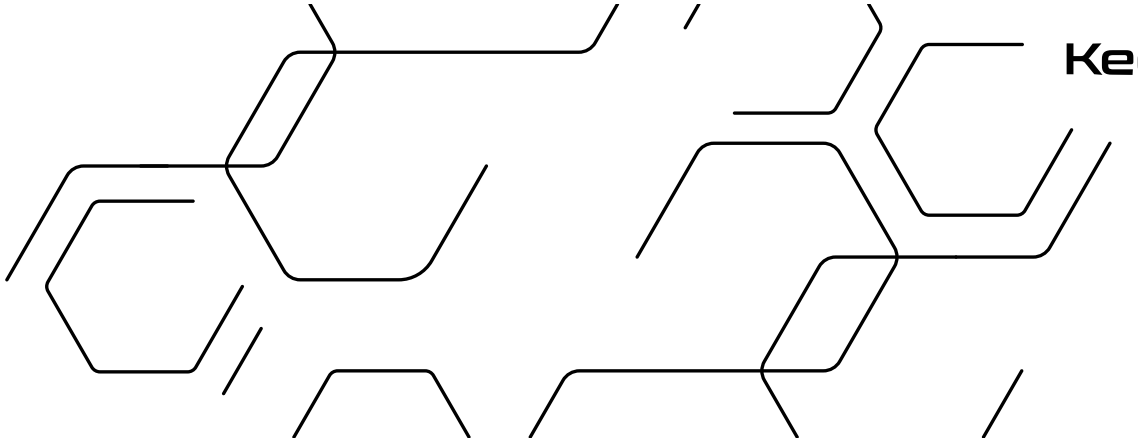
Keor MOD

THREE-PHASE
MODULAR UPS
up to 250 kW

THE GLOBAL SPECIALIST
IN ELECTRICAL AND DIGITAL INFRASTRUCTURES

legrand®

legrand



Keor MOD

CONTENTS

SUSTAINABILITY

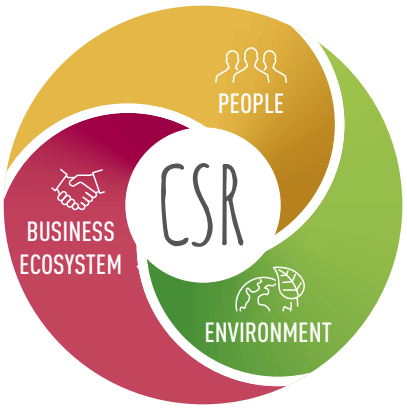
Corporate Social Responsibility

Green management and sustainable supply chain: these concepts are part of Legrand's Corporate Social Responsibility, which is the company's commitment to drawing up a strategy and implementing it with practical actions aimed at socially responsible behaviour towards everything around it, such as people, things and environment.
CSR involves the management of human resources, the organization and division of labour and the management of natural resources. CSR aims to assess the impact that the company's actions and decisions have internally, but also externally, on the stakeholders and the environment.

BUSINESS ECOSYSTEM
or how Legrand interacts ethically with the whole ecosystem of its activities.

PEOPLE
or how Legrand engages with all of its employees and stakeholders.

ENVIRONMENT
or how Legrand intends to limit the Group's environmental impact.



Circular economy

We are committed to creating a system that involves all stakeholders to share values, objectives and actions in order to control and reduce the environmental impact of all our economic and production processes, reduce waste and environmental impact and transform what would once have been defined as «waste» into new resources. Controlling these aspects has an impact on the entire life cycle of the product, starting from the design of new concepts and new specifications for the materials the UPS is made of; this is possible through responsible design and procurement processes (so-called «green procurement»), with a strong focus on research and the use of innovative materials from the circular economy and alternative raw materials. When a product ends its life, all these materials can become high value-added resources that can be used in other production cycles.

Digitalization

New information technologies allow us to reduce the use of several paper documents in favor of the digital format: in this way the information is always and everywhere accessible from a PC or smartphone and at the same time we can avoid the felling of many trees.
Digitization also becomes an important driver of the circular economy, since it allows the use of tools for performance data analysis and preventive diagnostics, both useful for optimizing the life cycle and durability of the product.

Efficiency

Our R&D team is constantly working on the development of increasingly efficient UPSs that allow high and incremental performance with minimum energy dissipation; with regard to CO_2 emissions, we are implementing processes and products that represent an improvement in the percentage of carbon footprint compared to the past.
But efficiency is not only synonymous with high performance.
For us, efficiency also means ecodesign: this implies that the UPS is designed to be easily repaired, maintained and it's easy to separate its components.
This means increasing the durability of our UPSs and the possibility of reusing and recycling them at the end of their life.

EPD/PEP

For each product family we draw up an EPD (Environmental Product Declaration) or PEP (Profil Environnemental Produit) in line with ISO 14025: it is a declaration that is a sort of environmental photograph of the product.
The EPD is drawn up according to the concept of Life Cycle Assessment: it examines the environmental impact of a product throughout its life cycle, from the development of product specifications to the choice of materials to be used and the end-of-life destination of the product itself.

Keor MOD

MORE THAN A UPS

Legrand presents the new **Keor MOD**, the latest addition to the UPS family that redefines the concept of modularity.

Design with unrivalled futuristic style and features.

Outstandingly flexible architecture for all installations and applications.

State-of-the-art technology to achieve the highest levels of efficiency.


Keor MOD
legrand

Keor MD

Keor MOD

TECHNOLOGY AND DESIGN

STYLISH

The elegance of the design and the skilful choice of materials have joined forces to create a modern and cutting-edge machine, a UPS with a highly emotional DNA boasting market-leading performance.

REVOLUTIONARY

All the elements comprising the system have been designed to ensure maximum reliability and performance, without forsaking its ease of installation and maintenance.
The use of light colours and highly reflective surfaces contribute to reducing environmental lighting in technical rooms (DATA CENTRES), and reduce consumptions in line with a GREEN approach.

POWERFUL

The **Keor MOD** power module is among the most compact three-phase 25 kW modules on the market; its high power density (1136 W/dm^3) makes it possible to achieve configurations of 125 kW with 5.2 minutes of autonomy (internal batteries) or 250 kW in less than 1m^2 of space on the ground with the door open.

PERFORMING

Double conversion efficiency up to 96.8%
(from 20% to 50% of the load)
Efficiency in ECO mode up to 99%.
Up to 4.7% more efficiency than the minimum values required by the European Code of Conduct for UPS VFI Elite (91.5%) *
Output power factor = 1
Hot-swappable modules.
Modular redundancy in N+1 configuration.
Intelligence distributed between modules.
UPS system capacity up to 600 kW.
Decentralised by-pass.
Reduced battery charging times.

* It establishes the basic principles with efficiencies regulated on the basis of the load percentages that must be followed by all the parties involved in the Energy Continuity Systems, in compliance with high energy efficiency equipment.

Keor MOD

IDEAL FOR IT INFRASTRUCTURES

Keor MOD is the ideal solution for all critical computer applications such as DATA CENTERS; its structure allows us to respond to customer demands in terms of continuous evolution of the IT infrastructure.

The range includes just two cabinet configurations:

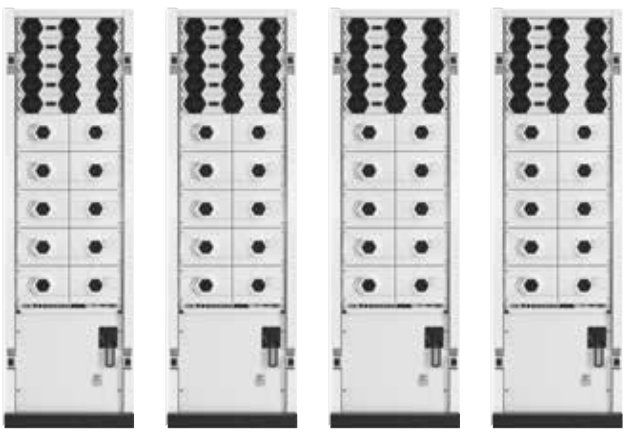
- up to 5 power modules with internal batteries (25 - 125 kW)
- up to 10 power modules (25 - 250 kW).

PARALLEL SYSTEM (Up to 600 kW without batteries*)

Each unit can be connected in parallel to identical or different units until the desired power and/or redundancy levels are reached.

For instance, it is possible to connect up to 4 x 125 kW units with internal batteries in parallel, obtaining a total system power of 500 kW (N+1 redundancy equal to 475 kW in any failure situation).

Moreover, with **Keor MOD** it is possible to connect in parallel up to 24 power modules, also connecting cabinets with different numbers of modules*.



* In the case of parallel configurations or configurations with a different number of modules, please contact your Service representative for a feasibility evaluation.

Keor MOD

A COLLABORATION OF

TECHNOLOGY

25 kW power module in just 2 units

Extensive research and use of latest generation components is behind the development of this three-phase power module with top performance levels in its category, minimising footprints and weights.

With a capacity of 25 kW and a footprint of just 2 rack units, the **Keor MOD** power module ensures maximum performance in exceptionally small spaces.

The **Keor MOD** power module is equipped with "System On Chip" type control technology which, unlike the conventional version (DSP based), contains a dual Core ARM A9 processor, a high performance FPGA and a set of advanced devices within one single component.
This technological choice provides an impressive range of advantages in terms of processing power, speed and versatility.

The power module houses the following components: input PFC, three-level inverter, integrated and independent control logic, battery charger, static and electromechanical by-pass.

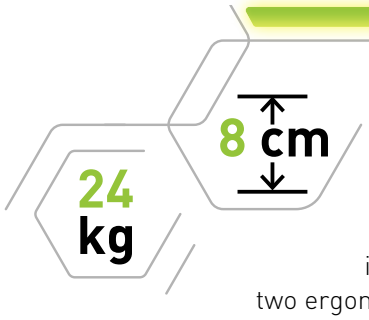
Structured Energy Flow

Unique in its kind, **Keor MOD** introduces the new *Structured Energy Flow* system, effectively eliminating all the connection cables inside the power module.

The connections between the various power sections are achieved by the structure that physically connects them.
This results in an exceptionally high level of reliability.

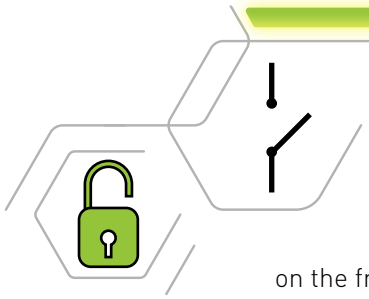
Keor MOD

EXCLUSIVE FEATURES



MAXIMUM MANOEUVRABILITY

The power module,
is extremely compact and integrates
two ergonomic handles to facilitate extraction
and insertion of the module.
Its light weight means it can also be handled
by a single person.



ELECTRICAL AND MECHANICAL SAFETY

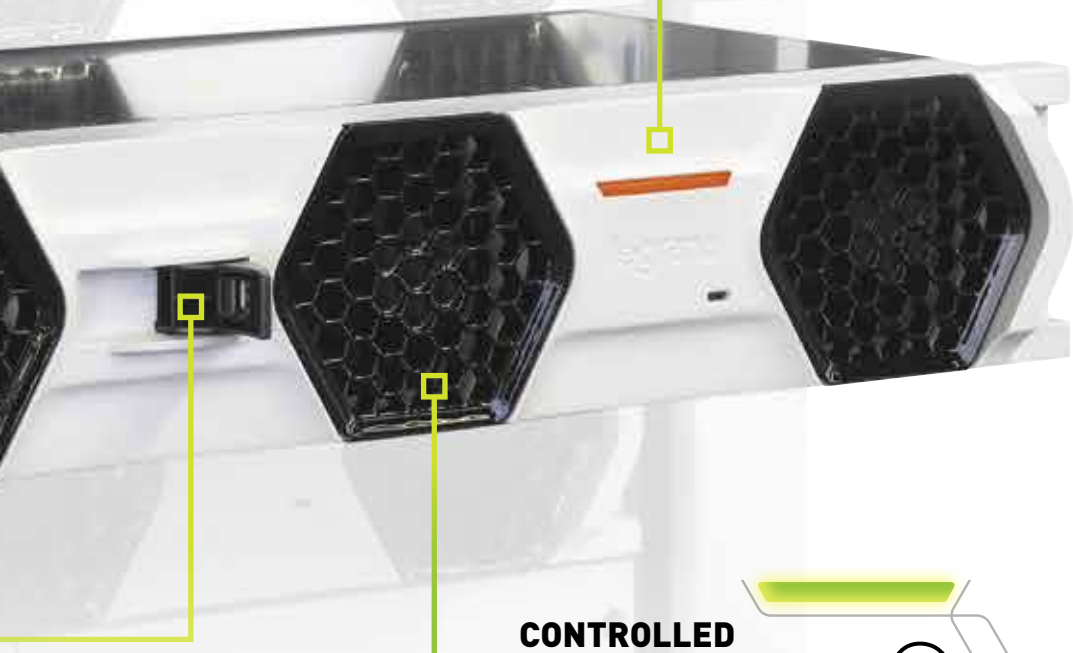
A simple and practical "SWITCH"
on the front provides the connection and the
disconnection both mechanical and electrical, which
prevents any incorrect or involuntary removals.

INSTANT COMMUNICATION

Distinctive element of all the Legrand UPS, **Keor MOD** also integrates a Led Status Bar (Multicoloured status bar) with traffic light type coding for the immediate display of the actual operating status.

«HOT SWAP» DESIGN

Thanks to the hot swap functions, plug and play and the total independence of each power module, all maintenance phases and any power expansion are extremely swift and simple.



CONTROLLED NOISE LEVEL

The control of the cooling fans is performed independently based on the load and the temperature of the single power stage, hence decreasing energy consumptions and the noise level of the system.

Keor MOD

INTERNAL BATTERIES UP TO 125 KW

Safe extraction

The battery drawers can be easily extracted using the handle on the front.
The mechanical anti-extraction stop prevents complete extraction of the drawer, preventing accidental falling and allowing operators to work in complete safety.

Light and dividable

The batteries inside the drawer are divided into 4 blocks, each with 6 batteries; this reduces weight (<16 kg each) and avoids direct contacts with dangerous voltages during maintenance phases.

Ease of handling

Each 6-battery block can easily be removed using the integrated handle.
The replacement of individual sections requires very little time and guarantees swift maintenance operations.

Keor MOD

EXCLUSIVE TOUCH SCREEN DISPLAY

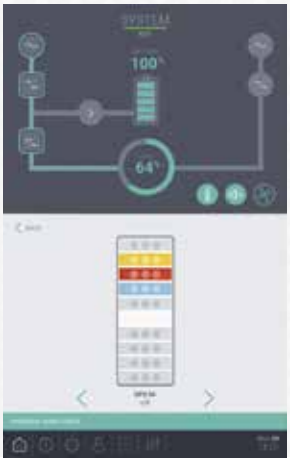
PATENT PENDING

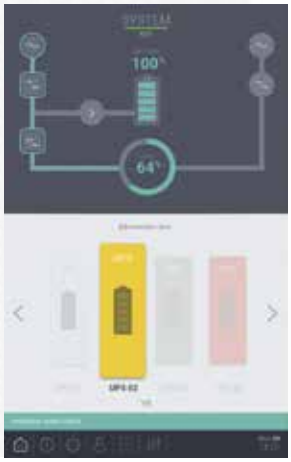
Rotating, unique functionality

The 10" touch screen display provides a simplified control panel packed with information, alerts and settings and is also equipped with interactive icons to make navigation and selection of the functions to be controlled quick and simple.
The possibility of being able to rotate the Display inwards by 180° simplifies and speeds up the configuration and maintenance phases.

10 inches with innovative graphics

The display is positioned vertically so you have both the operating block diagram and the UPS layout with all the available information on the same screen.



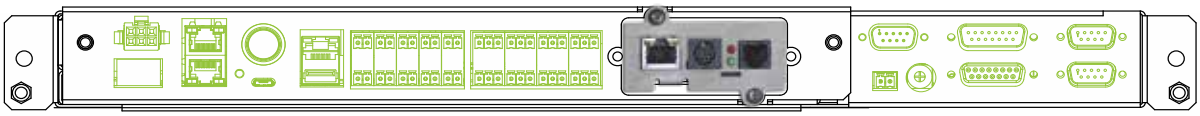


Intuitive and user friendly

All the display icons, including the operating panel, are interactive so as to facilitate navigation and the setting of customisable functions.

Keor MOD

COMPLETE ON BOARD COMMUNICATION



FRONT COMMUNICATION MODULE

The communication module is positioned on the front, is easily accessible and boasts a wide selection of communication interfaces.

- "Cold Start" push-button
- system communication ports
- RS485 port
- RS485 port for external accessories
- logical gate
- communication interface slot
- USB host port
- 11 floating contact inputs
- 8 floating contact outputs

Eliot is the Legrand program dedicated to connected objects (Internet of things) which identifies all those products or systems which, because they can connect to the internet, give added value in terms of functionality, information, interactions with the environment and use.

Keor MOD

UPS Modular three-phase double conversion VFI

3 104 80

General features:
- Just two cabinet configurations (up to 125 kW and up to 250 kW)
- Internal Backup time up to 125 KW
- UPS system capacity up to 600 kW
- Rotating 10" touch screen display
- Reduced battery charging times
- Double conversion efficiency up to 96.8% (power module efficiency)
- Efficiency in ECO mode up to 99%.
- Output power factor = 1
- Modular redundancy in N+1 configuration
- Controlled noise level
- Multicoloured status bar LED
- Parallelable system up to 24 power modules
- Hot-swappable modules
- Decentralised by-pass.
- Intelligence distributed between modules

Articles	UPS - empty power cabinets			
	Power (kW)	Installable battery drawers	Distribution	Weight (kg)
3 104 80	25 - 125	from 2 to 10 battery drawers	3-3	256
3 104 81	25 - 250	-	3-3	233

	UPS – power cabinet with seismic kit*	
		Weight (kg)
3 111 19	Keor MOD 125 kW with seismic kit	306
3 111 20	Keor MOD 250 kW with seismic kit	283

	UPS – power cabinet with additional distribution	
		Weight (kg)
3 111 17	Keor MOD 125 kW with additional distribution	329
3 111 18	Keor MOD 250 kW with additional distribution	346

	Accessories
3 106 75	25 kW power module
3 106 76	Empty battery blocks kit for 6 batteries (to be used in sets of 4 per drawer)
3 106 77	Kit of 2 EMPTY battery drawers
3 106 78	Kit of 4 battery blocks (6 x 9 Ah batteries)
3 106 79	Kit of 4 battery blocks (6 x 11 Ah batteries)
3 109 62	Kit of 4 battery blocks (6 x 9Ah Long Life batteries)
3 109 75	Parallel cable kit (1 kit every 2 cabinets - length 6m)
3 111 11	Top entry cable column
3 104 84	Modular battery cabinet with 16 drawers
3 102 59	Sync kit for UPS (cable length 26 m)**
3 104 82	Battery temperature probe
3 109 65	Empty battery cabinet 70-93 Ah
3 109 67	Empty battery cabinet 105 Ah

* partially assembled at the factory

** to create 2 synchronous but independent power lines (typical in Tier III, IV sustems and STS)

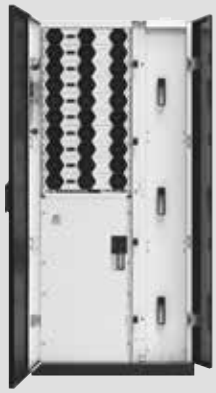
Examples of Keor MOD with accessories

Keor MOD 125 with seismic kit
Designed to maintain the structural integrity of units during and after seismic events.
Compliant to ASCE 7-16 and 2018 IBC with external laboratory certification.

Keor MOD 250 with seismic kit
Designed to maintain the structural integrity of units during and after seismic events. Compliant to ASCE 7-16 and 2018 IBC with external laboratory certification.

Keor MOD 125 with additional distribution
with integrated UPS switching devices.

Keor MOD 250 with additional distribution
with integrated UPS switching devices.



Keor MOD with top cable entry column
Designed to support top cabling to Keor MOD 125 and 250 kW in sites where the cabling is distributed through overhead cable trays.

Empty modular battery cabinet. Capacity up to 16 drawers
Designed to increase UPS backup time through hot swap battery drawers.

Keor MOD

UPS Modular three-phase double conversion VFI

Characteristics

General specifications										
Nominal power (kVA)	25	50	75	100	125	150	175	200	225	250
Active power (kW)	25	50	75	100	125	150	175	200	225	250
Module power (kW)	25									
Classification	On-Line double conversion VFI-SS-111									
No. Power modules	1	2	3	4	5	6	7	8	9	10
System	Modular, expandable and redundant UPS system									
Input specifications										
Input voltage	400V 3F+N+PE									
Input frequency	45-65 Hz (43.0 ÷ 68.4 Hz)									
Input voltage range	400V +15%/-20% - 230V +15%/-20%									
THD input current	< 3% (at full load)									
Compatibility with power supply units	Yes									
Input power factor	> 0.99									
Output Specifications										
Output voltage	380, 400, 415V									
Efficiency (power module)	Up to 96.8%									
System efficiency	Up to 96.5%									
Efficiency in Eco mode	99%									
Nominal output frequency	50/60 Hz selectable by the user ±1 % (standard), ±14 % (extended)									
Crest factor	3:1									
Waveform	Sinusoidal									
Output voltage tolerance	±1%									
THD output voltage	<0.5% with linear load, <1% with non-linear load									
Overload capacity	10 minutes at 125%, 60 seconds at 150%									
Bypass	Automatic bypass (static and electromechanical) and manual maintenance bypass									
Batteries										
Battery module	Plug & play									
Battery series type/voltage	VRLA - AGM 12 V, 9 Ah - 11 Ah									
Autonomy	Configurable									
Battery charger	Smart charge technology. 3-stage advanced cycle									
Independent battery configuration	Yes, maximum 5 sets of independent batteries (configurable as common or separate units)									
Communication and management										
Display	10-inch rotating colour touch screen									
Communication ports	2 x RS485 ports (one for external accessories), 11 input floating contacts, 8 output floating contacts, 1 interface slot, USB host port									
Back feed protection	NC/NO auxiliary contact									
Emergency Power Off (EPO)	Yes									
Cold start push-button	Yes									
Remote management	Available									
Mechanical characteristics										
Height (mm)	1990									
Width (mm)	600 (900 for solutions with additional column)									
Depth (mm)	1000									
Installable power modules	Up to 5					Up to 10				
Installable battery drawers	Up to 10					—				
Net weight kg	256					233				
Ambient Conditions										
Operating temperature/humidity	0 - 40°C / 0 - 95% non condensing									
Protection rating	IP20									
Maximum audible noise at 1 m from the unit (dBA)	50-65									
Estimated content of circular economy derived materials	**43%**									
Recyclability rate calculated using the method described in technical report IEC/TR 62635*	**74%**									
Conformity										
Certifications	EN 62040-1, EN 62040-2, EN 62040-3, EN 62040-4									
Services:										
Installation	Modular architecture with “plug & play” power modules and batteries									
Maintenance	Availability of optional services provided by the manufacturer									
Ease of management	Advanced diagnostic functions via the touch screen display									

CUSTOMER CARE SERVICES

RELIABLE

We are physically present in over 70 countries, which means we are able to intervene and provide support in over 150 countries worldwide. A team of qualified technicians is at your service to provide support and guarantee the correct functioning of your UPS; this aims to ensure high quality power and availability of energy even at the most critical loads.

EXCELLENCE

Legrand's competitive advantage lies in its capacity to provide high added value UPS and services for end users and business partners alike. Legrand's vision sees the creation of value as finding low energy consumption solutions, but also integration of solutions in the process of global development. With a catalogue of over 200,000 articles, the Group supplies all the products necessary for the realisation of electrical and digital systems, in particular integrated systems, aimed at finding solutions to meet everyone's needs.

TAILOR-MADE

Legrand provides a complete range of specific solutions and services to meet customer requirements:

- Pre-sale technical support during the design phase
- Final factory inspection and testing
- Supervision during installation, final testing and commissioning. On-site acceptance tests
- Training for operators
- On-site audits
- Extended warranties
- Annual maintenance contract
- Swift intervention in case of emergency calls

SUPPORT
TRAINING
MAINTENANCE

SUPPORT

Site inspection, installation supervision

We conduct a complete inspection of the environment in which the UPS will be installed to ensure its safety and failure free operation. Our technicians provide recommendations for the technical office or the electrical installer, and supervise the installation of the UPS before commissioning.

On-site tests, commissioning

Our technicians conduct thorough on-site tests and complete configuration of the UPS before commissioning. They also perform final inspection and testing operations according to your needs. The UPS commissioning operations are performed by our qualified engineers, to guarantee maximum functionality and the elimination of any problems after start-up.

TRAINING

We provide on-site training to guarantee safe use and efficient operation of your UPS.
Maintenance courses are also held at our training centre with equipment available for practical sessions.

MAINTENANCE

Preventive maintenance

Electronic equipment and electrical systems, like UPS devices, contain components and parts with a limited service life that must be periodically replaced according to the manufacturer's specifications; these replacement times are influenced by many factors, such as the ambient temperature, the nature of the load etc. To guarantee optimal performance and to protect your critical applications, as far as possible, from potential downtimes, it is essential to perform regular preventive maintenance and replace worn parts whenever necessary.
Our servicing contracts include cleaning, IR thermography, measuring, functional testing, event logs and power quality analysis, battery life checks, hardware and software updates and technical reports.
A preventive maintenance plan is one of the most convenient ways to preserve your investment and ensure the continuity of your business operations.

Corrective maintenance, emergency intervention

Thanks to the use of state-of-the-art equipment, custom made servicing software and regular training courses, our technicians are able to minimise analysis times and guarantee a short MTTR (Mean Time To Repair).
The malfunctioning parts will be replaced, and corrective actions, adjustments and updates will be performed to swiftly return the UPS to its normal operational status.

NOTES

FOLLOW US ALSO ON

@ www.ups.legrand.com

World Headquarters and International Department
87045 Limoges Cedex - France
☎ : + 33 (0) 5 55 06 87 87
Fax : + 33 (0) 5 55 06 74 55

AD-EXLGUPS-KM22B/GB - 06/2022