

# TRIMOD HE UPS



**MODULAR**  
THREE-PHASE UPS  
from 10 to 80 kW

THE GLOBAL SPECIALIST  
IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

 **legrand**<sup>®</sup>

# TRIMOD HE

**HIGH** performance  
**HIGH** efficiency  
**LOW** environmental impact

## DEVELOPMENTS IN TECHNOLOGY

Legrand's modular UPS know-how goes back more than 20 years, when the first ever modular UPS were introduced in 1993. Since then, continuous firmware development and research on control and hardware components have led to no stop improvements in system reliability, quality and technical performance.

Continuous research combined with modern production methods has led Legrand to offer the market a cutting-edge, top-performing product: certified efficiency up to 96% and unity power factor.

Combining high density with a structural design that optimises the space, the new TRIMOD HE systems is the ideal solution for advanced energy management and cost containment.

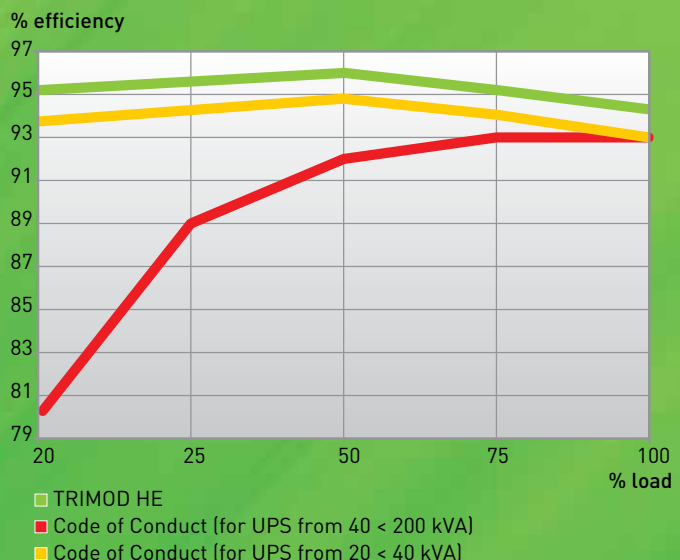


## CERTIFIED EFFICIENCY

One of the highest values in the market

# 96%

The European Code of Conduct requires a minimum value of 92%. TRIMOD HE is up to 4% more efficient, thus effectively dividing by 2 all UPS energy losses.







# kVA = kW

# POWER FACTOR 1

## INCREASED POWER

Thanks to their unity power factor the new TRIMOD HE UPS guarantee maximum real power; 11% more than competitor products offering 0,9 power factor, fully 25% more than those of 0.8 power factor.



# TRIMOD HE

**EXPANDABLE**  
**SCALABLE**  
**MODULAR**  
**VERSATILE**

The innovative concept of THREE-PHASE modularity, consisting of INDIVIDUAL SINGLE-PHASE MODULES which feature in the entire TRIMOD HE range, allows you to optimise power availability, increase system flexibility and reduce the total cost of ownership (TCO).

The standardised structure, consisting of smaller and lighter modules, makes it easier to transport and install the UPS systems.

All the components are self-configuring and integrate a Plug&Play connection system to make all diagnostics, maintenance and future expansion phases easier.

Because the TRIMOD HE system is versatile and programmable, it is also possible to:

- supply three independent single-phase lines, assigning a different priority to each one, in terms of operating time
- offer three different input/output configurations in a single cabinet: 3/3, 1/1, 3/1, 1/3
- increase the duration of the average battery life thanks to the Smart Charging System



Compact, lightweight single-phase power module (only 8.5 kg)



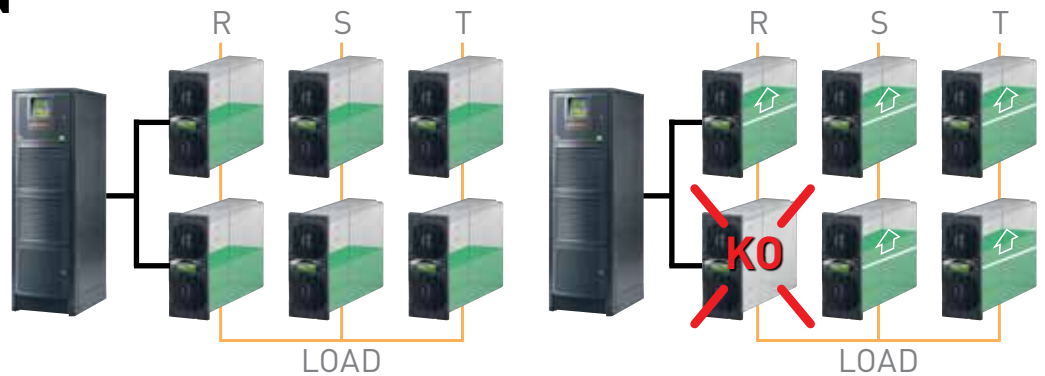
Easy to handle and install battery module (only 13 kg)





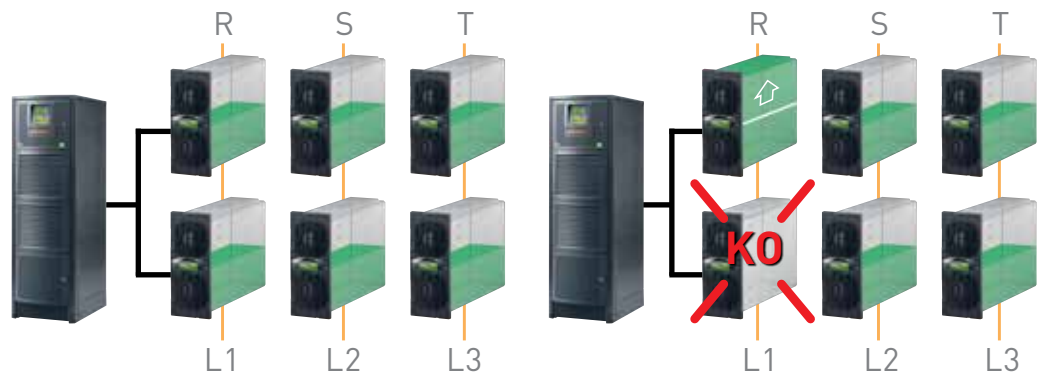
## REDUNDANCY ON SINGLE-PHASE LOAD

In a system with a three-phase power supply and a single-phase load there will be no power loss if one of the modules fails, as the power will be delivered by the other operational modules.



## REDUNDANCY ON THE PHASES

In a system with three independent outputs, it is possible to set the redundancy on the single phases. If one of the power modules fails, the modules in the same phase take over for the defective module.



## HIGH LEVELS OF REDUNDANCY

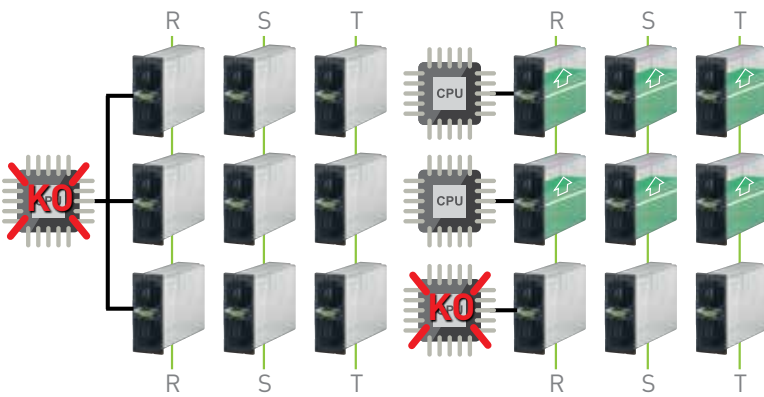
Thanks to the construction technology of the TRIMOD HE UPS systems, you can set various redundancy levels so that maximum continuity of service is always guaranteed.



# TRIMOD HE

## POWER CABINET WITH MULTI CONTROL BOARD

In order to increase service continuity and consequently decrease failures (limit the single point of failure) the new cabinet are provided with more control modules, from 1 to a maximum of 4, so as to ensure redundancy also on control.



### Redundancy on the control

In UPS systems incorporating several control modules, failure of one of the control boards results in the modules it controls being switched off. However, continuity of service is assured by automatic distribution of the lost power over the other modules.

### HOT-SWAP

Thanks to the multi control board system you can replace the power modules without having to turn off the UPS.

### Separate batteries

The new multi control board cabinet, also allows you to associate each control a separate battery pack.



# POWER CABINET WITH **DUAL INPUT** FUNCTION

TRIMOD HE, in addition to the standard cabinet, it offers cabinet with power up to 80 kW and DUAL INPUT function. The new cabinet can be fed two AC sources is source separated: the configuration can be selected at installation time and easily obtained by removing a bridge from the input terminals.

## POSSIBLE CONFIGURATIONS

SCALABLE SOLUTION  
FROM 40 kW UP TO 80 kW



SCALABLE SOLUTION  
FROM 60 kW UP TO 80 kW



REDUNDANCY SOLUTION  
60 kW N+1



# TRIMOD HE

## Double conversion VFI three-phase modular UPS



3 104 42



3 108 71



3 108 43

Pack	Cat. Nos.	UPS	Power kW	Operating time (min.)	no. and type of cabinet	Weight (kg)
1	3 104 42		10	11	1A	167
1	3 104 43		10	17	1A	223
1	3 104 44		10	35	1A	279
1	3 104 02		10	49	1B	350
1	3 104 45		15	13	1A	220
1	3 104 46		15	21	1A	279
1	3 104 07		15	29	1B	350
1	3 104 47		20	9	1A	220
1	3 104 48		20	14	1A	279
1	3 104 13		20	20	1B	350
1	3 104 17		30	8	1A	325
1	3 104 19 + 3 107 63		40	8	2A	564
1	3 104 20 + 2 x 3 107 58		60	9	3A	830

\*Cabinet A h=1370, Cabinet B h=1650

		Accessories	Description
1	3 108 69		3.4 kW power module
1	3 108 71		5 kW power module
1	3 108 73		6.7 kW power module
1	3 108 51		Additional 15 A battery charger module

		Battery accessories	Description
1	3 108 54		Kit of 4 empty battery drawers
1	3 108 43		Single drawer with 5 7.2Ah batteries (installable in multiples of 4)
1	3 108 45		Single drawer with 5 9Ah batteries (installable in multiples of 4)
1	3 108 75		Single drawer with 5 9Ah long life batteries (installable in multiples of 4)
1	3 109 29		Kit for separate batteries (only for 80 kW)

New product codes in red.

Cabinet A h=1370, Cabinet B h=1650

NOTE: The stated back-up times in minutes are estimated and may vary according to the load characteristics, operating conditions and environment.

Pack	Cat. Nos.	Power cabinet	Power kW	NO. of installable battery drawers	NO. of phases	Type of cabinet	Weight (kg)
1	3 103 96		10	12	1-1/3-3/3-1/1-3	A	120
1	3 103 97		10	16	1-1/3-3/3-1/1-3	B	155
1	3 104 08		15	12	1-1/3-3/3-1/1-3	A	120
1	3 104 03		15	16	1-1/3-3/3-1/1-3	B	155
1	3 104 14		20	12	1-1/3-3/3-1/1-3	A	120
1	3 104 09		20	16	3-3	B	155
1	3 104 18		30	-	1-1/3-3/3-1/1-3	A	146
1	3 104 15		30	12	3-3	B	181
1	3 104 19		40	-	3-3	A	146
1	3 104 20		60	-	3-3	A	165

		Power cabinets (empty)	Type and NO. of installable power module	NO. of installable battery drawers	NO. of phases	Type of cabinet	Weight (kg)
1	3 104 22		3 x 3,4 kW	12	1-1/3-3/3-1/1-3	A	85
1	3 104 31		3 x 3,4 kW	16	1-1/3-3/3-1/1-3	B	98
1	3 104 23		3 x 5 o 6,7 kW	12	1-1/3-3/3-1/1-3	A	90
1	3 104 32		6 x 3,4 kW	12	1-1/3-3/3-1/1-3	B	102
1	3 104 33		3 x 5 o 6,7 kW	16	1-1/3-3/3-1/1-3	B	102
1	3 104 24		6 x 5 kW	-	3-3	A	80
1	3 104 25		6 x 5 kW	-	1-1/3-3/3-1/1-3	A	84
1	3 104 34		6 x 5 kW	12	3-3	B	104
1	3 104 26		6 x 6,7 kW	-	3-3	A	80
1	3 104 27		9 x 6,7 kW	-	3-3	A	90

		DUAL INPUT Power cabinets (empty)	Type and NO. of installable power module	NO. of installable battery drawers	NO. of phases	Type of cabinet	Weight (kg)	NO. CTRL boards
1	3 104 65		3 x 3,4 kW	12	1-1/3-3/3-1/1-3	A	86	1
1	3 104 66		3 x 5 o 6,7 kW	12	1-1/3-3/3-1/1-3	A	89	1
1	3 104 67		3 x 5 o 6,7 kW	16	1-1/3-3/3-1/1-3	B	103	1
1	3 104 68		6 x 3,4 o 5 kW	-	1-1/3-3/3-1/1-3	A	85	2
1	3 104 69		6 x 5 kW	12	3-3	B	106	2
1	3 104 71		6 x 6,7 kW	-	3-3	A	82	2
1	3 104 72		9 x 6,7 kW	-	3-3	A	91	3
1	3 104 73		12 x 6,7 kW	-	3-3	B	120	4

		Additional empty battery cabinets	Description
1	3 108 05		16-drawer modular battery cabinet
1	3 108 06		20-drawer modular battery cabinet

		Additional battery cabinets with batteries	Batteries	Description
			7,2 Ah	
			9 Ah	
1	3 107 55	3 107 60		Modular battery cabinet with 4 drawers
1	3 107 56	3 107 61		Modular battery cabinet with 8 drawers
1	3 107 57	3 107 62		Modular battery cabinet with 12 drawers
1	3 107 58	3 107 63		Modular battery cabinet with 16 drawers
1	3 107 59	3 107 64		Modular battery cabinet with 20 drawers

		Additional battery cabinets for long-life 94 Ah batteries (empty)	Description
1	3 108 12		Battery cabinet (20 x 94Ah - WxLxD 1635x600x800 mm)

		Battery kit 94 Ah	Description
1	3 109 23		kit of 20 batteries 94Ah



# TRIMOD HE

## Double conversion VFI three-phase modular UPS

### Characteristics

General specifications	3 103 96 3 103 97 3 104 65	3 104 03 3 104 08	3 104 09 3 104 14 3 104 66 3 104 67	3 104 15* 3 104 18* 3 104 68 3 104 69	3 104 19 3 104 71	3 104 20 3 104 72	3 104 73
Nominal power (kVA)	10	15	20	30	40	60	80
Active power (kW)	10	15	20	30	40	60	80
Module power (kW)	3,4	5	6,7	5	6,7	6,7	6,7
Classification	On-Line double conversion VFI-SS-111						
System	Modular, expandable and redundant UPS system						
<b>Input specifications</b>							
Input voltage	380, 400, 415 3PH+N+PE (or 220, 230, 240 1PH)			380, 400, 415 3PH+N+PE			
Input frequency	45-65 Hz (43,0 ÷ 68.4 Hz)						
Input voltage range	400V +15%/-20% - 230V +15%/-20%			400V +15%/-20%			
THD input current	< 3% ( at full load)						
Compatibility with power supply units	Si						
Input power factor	> 0,99						
<b>Output Specifications</b>							
Output voltage	380, 400, 415 3F+N+PE (o 220, 230, 240 1F)			380, 400, 415 3F+N+PE			
Efficiency	Up to 96%						
Efficiency in Eco mode	99%						
Nominal output frequency	50/60 Hz selectable by the user ±2 % (standard), ±14 % (extended)						
Crest factor	3:1						
Waveform	Sinusoidal						
Output voltage tolerance	±1%						
THD output voltage	<1%						
Overload capacity	10 minutes at 115%, 60 seconds at 135%						
Bypass	Automatic bypass (static and electromechanical) and manual maintenance bypass						
<b>Batteries</b>							
Battery module	Plug & play						
Battery series type/voltage	VRLA - AGM / 240 Vdc						
Operating time	Configurable						
Battery charger	Smart charge technology. 3-stage advanced cycle						
Batteries separate configuration	no	yes				yes with kit	
<b>Communication and management</b>							
Display and signals	4 x 20-character lines, 4 menu navigation buttons, LED multi-colour status indicator, alarms and audio signals						
Communication ports	2 RS232 serial ports, 1 logical gate, 5 ports with dry contacts, 1 slot for interfaces						
Backfeed protection	NC/NO auxiliary contact						
Emergency Power Off (EPO)	Yes						
Remote management	Available						
<b>Physical Specifications</b>							
Height (A-B)	1650 - 1370		1650 - 1370	1370	1370	1650	
Width	414		414	414	414	414	
Depth	628		628	628	628	628	
Installed power modules	3		6	6	9	12	
Installable battery drawers (A-B)	Up to 16 - Up to 12		Up to 12 - 0	-	-	-	
Net weight kg (A-B)	155 - 120		181 - 146	146	165		
<b>Ambient Conditions</b>							
Operating temperature/humidity	0 - 40°C / 0 - 95% non condensing						
Protection rating	IP21						
Maximum audible noise at 1 m from the unit (dBA)	58-62						
<b>Conformity</b>							
Reference product standards	EN 62040-1, EN 62040-2, EN 62040-3						

\* Standard configurations with 3-3 distribution (multi IN/OUT conf available on request)

# TRIMOD HE

## Long back up time table



modular battery cabinet  
up to 20 battery drawers installable  
(100 batteries)



not modular battery cabinet  
up to 21 batteries installable\*

TRIMOD HE	cabinet type	Power (kW)	Back up time (min)	Dimensions A x L x P (mm)	Weight (kg)
3 104 43 + 3 107 58	modular	10	68	1370 x 414 x 628 + 1650 x 414 x 628	527
3 104 46 + 3 107 60	modular	15	33	2 x 1370 x 414 x 628	413
3 104 46 + 3 108 08	not modular	15	110 *	1370 x 414 x 628 + 1635 x 600 x 800	865
3 104 46 + 3 107 63	modular	15	57	2 x 1370 x 414 x 628	550
3 104 48 + 3 107 62	modular	20	35	2 x 1370 x 414 x 628	572
3 104 14 + 3 108 08	not modular	20	82 *	1370 x 414 x 628 + 1635 x 600 x 800	865
3 104 18 + 3 107 63	modular	30	12	2 x 1370 x 414 x 628	434
3 104 18 + 3 108 09	not modular	30	50 *	1370 x 414 x 628 + 1635 x 600 x 800	890
3 104 18 + 2 x 3 108 09	not modular	30	110 *	1370 x 414 x 628 + 2 x 1635 x 600 x 800	1645
3 104 19 + 2 x 3 107 58	modular	40	16	3 x 1370 x 414 x 628	801
3 104 19 + 3 108 10	not modular	40	33 *	1370 x 414 x 628 + 1635 x 600 x 800	925
3 104 19 + 2 x 3 108 10	not modular	40	82 *	1370 x 414 x 628 + 2 x 1635 x 600 x 800	1700
3 104 19 + 3 x 3 108 10	not modular	40	120 *	1370 x 414 x 628 + 3 x 1635 x 600 x 800	2430
3 104 19 + 3 x 3 107 59	modular	40	38	1370 x 414 x 628 + 3 x 1650 x 414 x 628	439
3 104 19 + 4 x 3 107 64	modular	40	60	1370 x 414 x 628 + 4 x 1650 x 414 x 628	1663
3 104 20 + 2 x 3 107 64	modular	60	15	1370 x 414 x 628 + 2 x 1650 x 414 x 628	942
3 104 20 + 4 x 3 107 63	modular	60	27	5 x 1370 x 414 x 628	1579
3 104 20 + 3 108 11	not modular	60	17 *	1370 x 414 x 628 + 1635 x 600 x 800	952
3 104 20 + 2 x 3 108 11	not modular	60	50 *	1370 x 414 x 628 + 2 x 1635 x 600 x 800	1715
3 104 20 + 3 x 3 108 11	not modular	60	80 *	1370 x 414 x 628 + 3 x 1635 x 600 x 800	2474
3 104 20 + 4 x 3 108 11	not modular	60	110 *	1370 x 414 x 628 + 4 x 1635 x 600 x 800	3234

\* Configurations with battery cabinet (20 x 94 Ah).

Dimensions and weight: A x L x P 1635 x 600 x 800 (mm), 785 kg

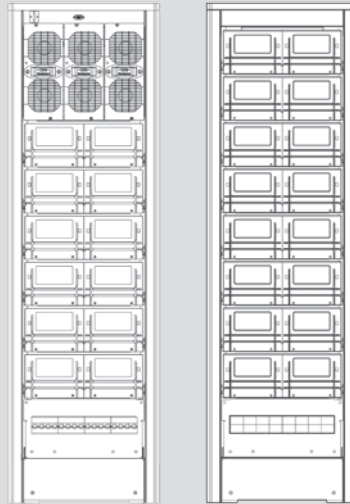
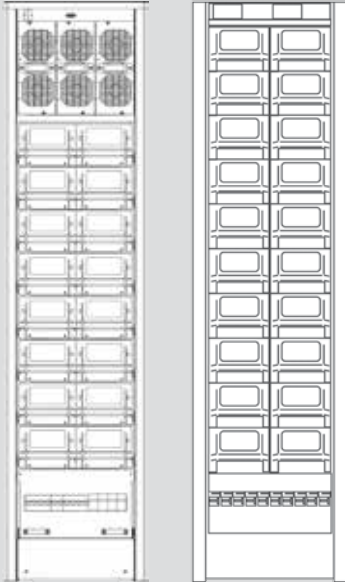
**NOTE:** The stated back-up times in minutes are estimated and may vary according to the load characteristics, operating conditions and environment.

# TRIMOD HE

## Examples of configuration

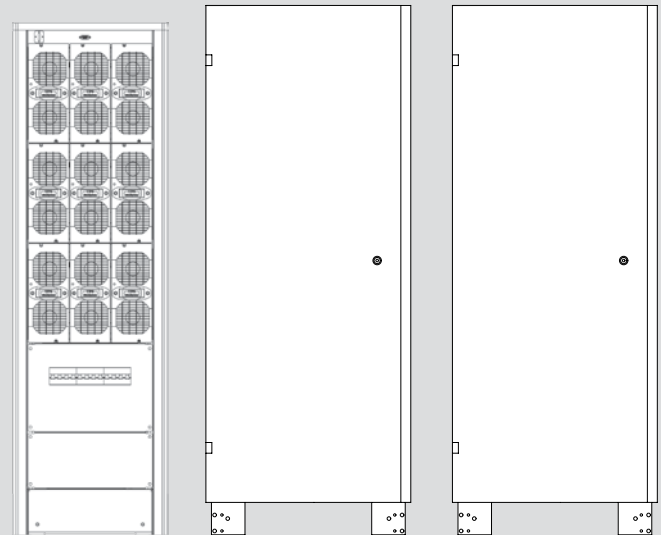
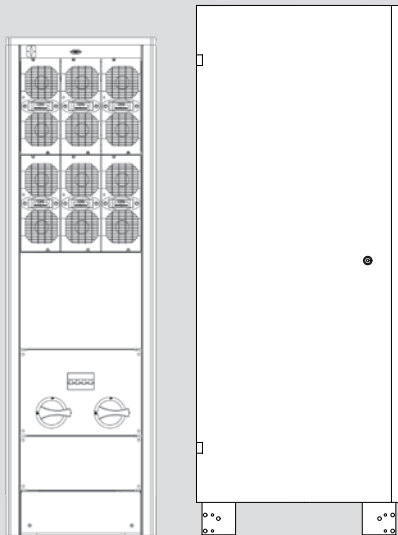
TRIMOD HE 10 kW  
 2 modular cabinets  
 Backup time 68 min  
 Weight 527 kg

TRIMOD HE 15 kW  
 2 modular cabinets  
 Backup time 57 min  
 Weight 550 kg



TRIMOD HE 30 kW  
 1 modular cabinet, 1 not modular cabinet **(20 x 94 Ah)**  
 Backup time 50 min  
 Weight 890 kg

TRIMOD HE 60 kW  
 1 modular cabinet, 2 not modular cabinets **(20 x 94 Ah)**  
 Backup time 50 min  
 Weight 1715 kg







# CUSTOMER SERVICES

## Reliable

Directly present in more than 70 countries and servicing its products in more than 150 countries worldwide, a team of qualified engineers is available 24/7/365 to support your UPS system to ensure power quality and availability to the most critical loads.

## Excellent

Legrand's competitive edge lies in its ability to provide high value-added UPS systems and services for both end users and business partners.

For Legrand, creating value means coming up with solutions for lower energy consumption, but also integrating product design into the overall development process.

With around 200 000 catalogue items, the Group also provides all products required for electrical and digital building installations, particularly as integrated systems, finding solutions to fit everyone's needs.

## Tailor-made

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

- Technical pre-sales support at the project design stage
- Factory acceptance test
- Supervision of installation, testing and commissioning, site acceptance test
- Operator training
- Site audit
- Warranty extension
- Annual maintenance contract
- Fast intervention on emergency call

## SUPPORT



### **SITE INSPECTION, INSTALLATION SUPERVISION.**

We perform a comprehensive check of the UPS environment to ensure safety and fault-free operation.

Our technical experts give manufacturer's recommendations to the site engineer or electrical contractors, and supervise the UPS installation before load power-up.

### **SITE TEST, COMMISSIONING.**

Our Service Engineers conduct rigorous site tests and full setting-up of the UPS system before going live. They also perform site acceptance tests according to your requirements.

Commissioning operations for all UPS are carried out by qualified engineers to guarantee seamless start-up.

After the final handing over of the UPS system, a Test and Commissioning report is delivered to you.

## TRAINING



We offer on-site training to ensure your equipment's safe and efficient operation.

Troubleshooting courses are also available in our plants for intensive hands-on practice on UPS training equipment.

## MAINTENANCE



### **PREVENTIVE MAINTENANCE**

Electronic equipment and power systems, such as UPS, contain life-limited components and parts that must be replaced according to the manufacturer's specifications.

To ensure optimal performance and to protect your critical application from potential downtime, it is crucial to perform

preventive maintenance operations on a regular basis and replace parts when needed. Our Service Contracts include cleaning, IR thermography, measurements, functional tests, event log and power quality analysis, battery health check, hardware and software upgrades, and technical reports.

A Preventive Maintenance Plan is one of the most cost-effective actions that can preserve your initial investment and ensure your business continuity.

### **CORRECTIVE MAINTENANCE, EMERGENCY CALL**

In the event of an Emergency Call, our worldwide service network, with engineers and spare-parts stocks strategically located as close as possible to your site, guarantees a fast intervention time with 24/7/365 assistance.

After connecting his laptop to your UPS, very powerful diagnostic software helps our engineer to identify the fault, thus ensuring short MTTR (Mean Time To Repair).

Corrective actions are performed such as part replacement, adjustments and upgrades to return the UPS system back to normal operation.









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