

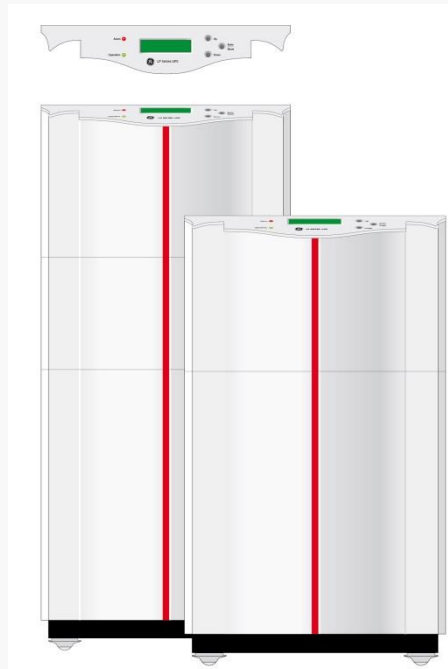
GE  
Critical Power

# Technical Data Sheets

Uninterruptible Power Supply

LP11 Series UPS

3 – 5 – 6 – 8 – 10 kVA



**GE Consumer & Industrial SA**

General Electric Company  
CH – 6595 Riazzino (Locarno)  
Switzerland  
T +41 (0)91 / 850 51 51  
F +41 (0)91 / 850 52 52

[www.gecriticalpower.com](http://www.gecriticalpower.com)



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012

Model: **LP11 Series 3 – 5 – 6 – 8 – 10 kVA**  
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#### Up-dating

Revision	Concern	Date
0311	Initial release	14.11.2003
0511	Restyle	17.11.2005
0901	Branding, cooling, safety standards, backup table	01.04.2009
1010	Restyle	29.10.2010
1705	Restyle, branding, general revision	23.05.2017

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The illustrations and plans describing the equipment are intended as general reference only and are not necessarily complete in every detail.

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## GENERAL DATA

Topology	VFI, double conversion					
Nominal output rating	kVA/kW	3/2.4	5/4	6/4.8	8/6.4	10/8
Overall efficiency at nominal load	%	86	88	88	87	89
Heat dissipation at inverter nominal load, PF=0.8. and charged battery	W	327	545	655	872	988
Cooling air (25°C - 30°C)	m <sup>3</sup> /h	330 max.				
Audible noise level	dB(A)	40-50 (EN 27779)				
Operating temperature range	-10°C - 40°C (15°C - 25°C recommended for battery)					
Storage temperature range	-20°C - +45°C					
Relative humidity	Max. 95% (non-condensing)					
Protection degree	IP 20 (IEC 60529 and DIN 40050)					
Safety	IEC/EN 62040-1/A1					
EMC	IEC/EN 62040-2					
Surge capacity	IEC 61000-4-5 (6kV 1.2/50 µsec -3kA 8/20µsec)					
Electrostatic discharge immunity	4kV contact / 8kV air discharge					
Transport	On pallet / rollers for installation					
Colour	Cubicle: RAL 9010 (white) Front panel: RAL 9006 (aluminum)					
Cable connections	On terminals, bottom-rear					
Cooling	Forced by regulated internal fans					

## INPUT CONVERTER (rectifier + power factor correction)

Nominal AC input voltage	220 - 240V L + N					
Input frequency range	40 - 70Hz					
Power factor	>0.99					
THDi	<10%					
Nominal input current (no charging, U <sub>in</sub> = nominal)	A	12.1	19.8	23.7	31.6	39
Inrush current	None					
DC output voltage	380 V					

## BATTERY CHARGER

Battery charging characteristic	IU (DIN 41773) constant current charging until floating voltage, then constant voltage charging + boost charge					
DC input voltage range	350 - 450 V					
DC output voltage	162.5/177V (3kVA), 271/295.5V (5/6/8/10kVA)					
Output current limitation	Adc	2.1	2.1	2.1	3.6	3.6
Recharge time	1.5 - 3 hours for 80% capacity					

## BATTERY DATA

Battery type	Sealed and maintenance free (VRLA=Valve Regulated Lead Acid)					
Float voltage at 25°C	162.5 / 271 V					
Number of 12V batteries (in standard version)	12x7Ah (3kVA) 20x7Ah (5/6kVA) 20x12Ah (8/10kVA)					
Standard backup time at nominal load PF=0.8	min	8	9	7	10	7
Standard backup extensions	See table on page 6					

<b>OUTPUT CONVERTER (inverter)</b>						
Input voltage range	270 - 400 V					
Nominal output power at PF=0.8	kVA	3	5	6	8	10
Nominal output power with resistive load	kW	2.4	4	4.8	6.4	8
Nominal AC output voltage	220 / 230 / 240V (user selectable)					
Output voltage waveform	Sine wave					
Output voltage tolerance:						
- static resistive load	+/- 1%					
- dynamic mean deviation over half cycle (load step 0-100-0%)	+/- 2%					
- with measured non-linear load 2.5:1	+/- 2%					
- recovery time to +/-1%	10ms					
Overload capability (battery operation)	110%: 20 min., 130%: 3.5 min., 150%: 2 min.					
Short circuit current capability (240ms)	A	32	45	50	67	100
Output frequency	50/60Hz (selectable)					
Output frequency tolerance	+/- 0.1%, unless synchronised with the utility					
Frequency tracking range	+/- 2, 4 or 6% of nominal, selectable					
Max. phase shift difference input-output	7°					
Harmonic distortion with linear load	2% max					
Harmonic distortion with non-linear load (EN 50091)	10% max. with measured crest factor 2.5:1					
Power factor range	Any lagging or leading power factor is permitted within the specified rating to PF=0.5					
Crest factor handling capability of a non-linear load	5:1					
Output power derating altitude	Up to 1000m no derating Till 2000m 12.5% per 1000m, max. 2000m					
Protection	Automatic shut down (or transfer to bypass if available) in case of: - low/high DC voltage - overtemperature - overload / short circuit Output protected against connection to the mains					
Short-circuit clearance capability	20% In within 10 ms with MCB class B					
Inverter bridge	PWM and IGBT technology					

<b>BYPASS</b>						
Primary components	- Thyristor switch - Synchronisation circuit inverter/bypass mains					
Bypass voltage limits	+/- 10% of nominal					
Frequency tracking range	+/- 2, 4 or 6% of nominal, selectable					
Slew rate	1Hz/s or 5Hz/s, selectable					
Overload capability on bypass, 1 minute/10 minutes	A	27/18	45/30	65/45	73/60	90/75

<b>INTERFACING</b>						
Potential free contacts	Four open-collector contacts signalling following alarms: - bypass active - mains failure - battery low - general alarm					
ComConnect port (on Delta 9 pin connector)	For serial communication					
Input terminals for	- Emergency shutdown - Battery extension MCB alarm wiring					

Note: all indicated values are typical. Variations may be found from one unit to another.

## CONTROLS, SIGNALS AND ALARMS

### Front

Operation/Alarm : green/red LED  
LCD screen : 2 x 16 characters  
Push-buttons  
Buzzer (resettable)

### Rear

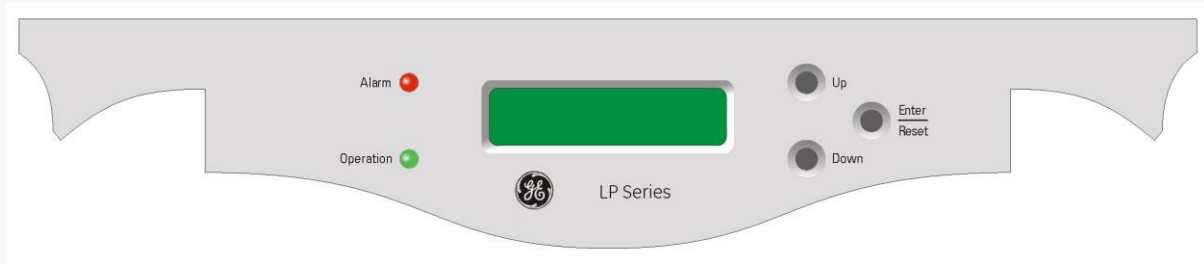
3 option slots for : RS232 interface card (std installed)  
: Potentialfree contacts\*  
: SNMP\*  
: RPA\* redundant parallel architecture

On/off switch  
Manual bypass switch  
Input/Output terminals  
DC connector for external batteries (not for LP 3-11)  
Line circuit breaker  
Bypass circuit breaker

\* = option

The LCD screen shows UPS system data, status messages, alarm messages, settings.

### Front panel



## OPTIONAL FEATURES

### SNMP interface card

An SNMP interface card can be placed in the rear panel of the UPS, and allows the data interface to be connected directly to an Ethernet network.

When this option is installed the RS232 communication link (serial communication) is no longer available to the user.

### Relay card

The relay plug-in card can be installed in the rear panel of the UPS. The card is provided with four potential free contacts representing: battery low, bypass active, utility failure and general alarm.

### Alarm boxes

An interface box linked to the RS232 port, the VIC/RELAYBOX/01 translates the RS232 signals to five independent changeover contacts, with a maximum switching capacity of 230V/5A each.

Wall mounted plastic alarm boxes are available for remote audible and visual alarm indication.

### Connectivity products

A splitter box translates information from the RS232 to several computers.

Interface kits (cables and/or software) are available for operating systems supporting JAVA and most commonly used network operating systems, including Novell, UNIX, VMS, Windows platforms, IBM OS/2, LINUX.

Please contact your dealer for specific information.

### Battery extension packs

Except for the 3-11 model, the LP 11 UPS can be equipped with additional batteries to increase the runtime of the unit. These additional batteries are housed in a separate battery pack. Additional batteries will increase the recharging time for the unit. All other operational information is the same.

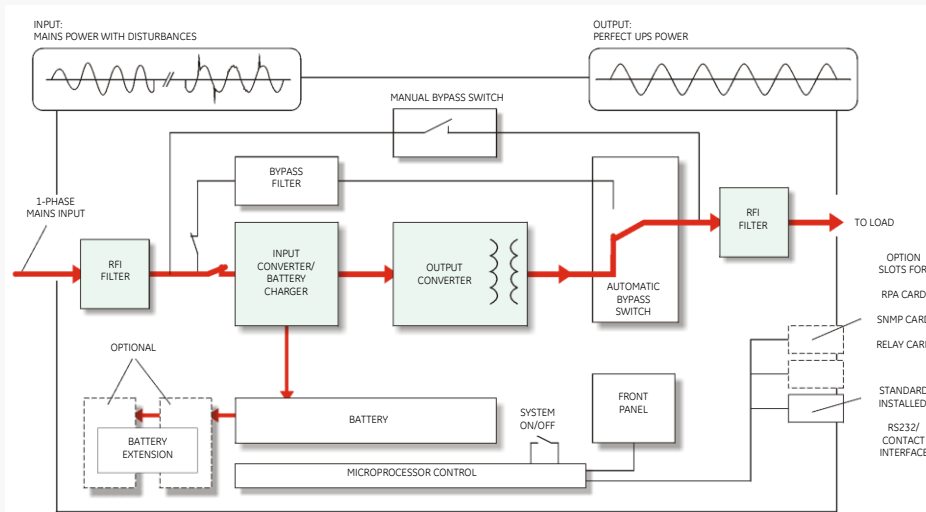
Battery packs can be connected in parallel to increase the runtime. DC connectors make installation of battery packs easy and simple.

## DIMENSIONS AND BATTERY

UPS Model	Backup time (min.)	Total capacity (Ah)	Nr. of extra battery cabinets	Battery cabinet "VSDA 1"	UPS cabinet		
					Dimensions	UPS weight (*)	Shipping weight (*)
LP3-11	8	7	n.a.	n.a.		85kg	100kg
LP5-11	9 *	7 *	-	Dimensions (h $\times$ w $\times$ d): 537 $\times$ 313 $\times$ 590mm  Shipping dimensions (h $\times$ w $\times$ d): 800 $\times$ 460 $\times$ 750mm  Battery: 240Vdc 7Ah or 14Ahr  Weight with battery: 70kg or 120kg  Shipping weight: 85kg or 135kg	Cabinet: "VSD1"  Dimensions (h $\times$ w $\times$ d): 537 $\times$ 313 $\times$ 590mm (height with wheels)  Shipping dimensions: 800 $\times$ 460 $\times$ 750mm	110kg	125kg
	24	14	1				
	40	21	1				
	55	28	2				
LP6-11	7 *	7 *	-		Cabinet: "VSD2"  Dimensions (h $\times$ w $\times$ d): 680 $\times$ 313 $\times$ 720mm (height with wheels)  Shipping dimensions: 915 $\times$ 460 $\times$ 810mm	115kg	130kg
	19	14 *	1				
	32	21	1				
	45	28	2				
LP8-11	58	35	2		165kg	185kg	
	10 *	12 *	-				
	20	19	1				
	29	26	12				
LP10-11	39	33	2	170kg	190kg		
	48	40	2				
	7 *	12 *	-				
	15	19	1				
LP10-11	23	26	1				
	31	33	2				
	40	40	2				
	40	40	2				

(\*): Standard backup time and capacity

## UPS BLOCK DIAGRAM, PROTECTIONS AND CABLE SECTIONS



Recommended external fusing of input wiring		Cable sections input and output recommended by European standards / in ( ) SEV Alternatively, local standards to be respected	
UPS Model	Fuses gL / gG or Automatic Breakers	CABLE SECTIONS	
	Mains / Bypass input	mm <sup>2</sup>	AWG
LP3-11	16A	4	12
LP5-11	25A	6	10
LP 6-11	25A	6	10
LP 8-11	50A	10	8
LP 10-11	50A	10	8