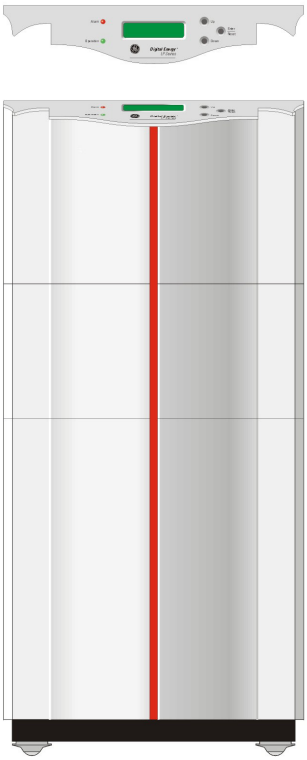
GE
Digital Energy

Technical data sheet

Uninterruptible Power Supply

LP11 924 Series
6 & 10 kVA



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Certified
Quality System
ISO 9001
Reg.No.CSQ 9130.GELE

General data				
Topology		VFI, double conversion		
Nominal output rating		kVA/kW	6/4.8	10/8
Output power factor		Lag/Lead	0.8	0.8
Efficiency in double conversion operating mode (linear resistive load and fully charged battery)	25% load	%	85.5	87.2
	50% load		87.7	89.5
	75% load		88.3	89.5
	100% load		88.7	88.7
Heat dissipation in double conversion operating mode (linear resistive load and fully charged battery)	25% load	W (BTU/hr)	204 (695)	292 (997)
	50% load		337 (1150)	468 (1596)
	75% load		477 (1628)	705 (2404)
	100% load		608 (2076)	1018 (3474)
Efficiency while operating in eco mode (linear resistive load and fully charged battery) (eco mode not available in RPA)	25% load	%	90.6	93.3
	50% load		92.5	95
	75% load		93.3	95.1
	100% load		93	94.2
Heat dissipation while operating in eco mode (linear resistive load and fully charged battery) (eco mode not available in RPA)	25% load	W (BTU/hr)	120 (409)	120 (409)
	50% load		190 (648)	190 (648)
	75% load		220 (750)	270 (921)
	100% load		360 (1228)	500 (1706)
Cooling air (25°C - 30°C)		m^3/h (CFM)	330 (194) max.	
Audible noise level (at 5 ft./1.5Mts)		dB(A)	40 at no load and 50 at 100% load	
Operating temperature range		0°C - 40°C (32°F - 104°F); For optimal back up time 20°C - 30°C (68°F - 86°F) is recommended for battery.		
Storage temperature range		-20°C - 45°C (-4°F - 113°F)		
Relative humidity		Max. 95% (non-condensing)		
Protection degree		IP 20 (IEC 60529 and DIN 40050)		
Safety		UL 924; IEC 60950, IEC 62040-1		
EMC		FCC part 15 class A; IEC/EN 62040-2 Class A		
Surge capacity		IEC 61000-4-5 (6kV 1.2/50 µsec –3kA 8/20µsec) & IEEE C62.41 (6kV, 100kHz)		
Electrostatic discharge immunity		4kV contact / 8kV air discharge		
Transport		On pallet / rollers for installation		
Color		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		120V, 208V, 240V split phase, 277V. For 208 & 240V input, bottom transformer cabinet is not required.		
Input frequency range		40 - 70Hz		
Power factor		> 0.99		
THDi		<10%		
Full load input current (Charging current included)	Uin = 120V	A	57	89
	Uin = 208V	A	33	51
	Uin = 240V	A	30	44
	Uin = 277V	A	23	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 (Float/Boost)	**271/295.5V**		
Output current limitation	**A**	**4.2**	**4.2**
Recharge time	**80% capacity**	**20 hours**	**24 hours**

Battery data			
Battery type	**Sealed and maintenance free (VRLA=Valve Regulated Lead Acid)**		
Float voltage at 25°C	**271 V**		
Number of 12V batteries		**20x78Ah**	**20x91Ah**
Standard backup time at 100% load PF=0.8	**Minutes**	**150**	**93**

Output converter (inverter)			
Full load output power at PF=0.8	**kVA**	**6**	**10**
Full load output power with resistive load	**kW**	**4.8**	**8**
Full load AC output voltage	**120, 208, 220, 230, 240, 277V**		
Output voltage waveform	**Sine wave**		
Output voltage tolerance: - static resistive load - dynamic mean deviation over half cycle (load step 0-100-0%) - with measured non-linear load 2.5:1 - recovery time to +/-1%	 **+/- 1%** **+/- 2%** **+/- 2%** **10ms**		
Overload capability (battery operation)	**110%: 20 min., 130%: 3.5 min., 150%: 2 min.**		
Short circuit capability (240ms)	**2.1 x full load current**		
Output frequency	**50/60Hz (selectable)**		
Output frequency tolerance	**+/- 0.1%, unless synchronized 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	**1% max**		
Harmonic distortion with non-linear load (EN 50091-3)	**<10%**		
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/3281ft. no derating** **Above 1000m/3281ft. 12.5% per 1000m/3281ft., max. 4000m/13124ft.**		
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% full load current within 10 ms with MCB class B**		
Inverter bridge	**PWM and IGBT technology**		

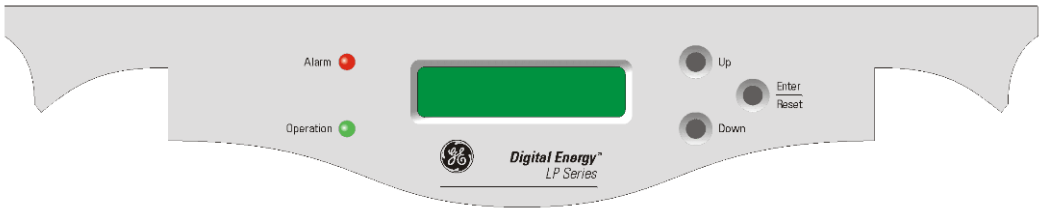
Bypass			
Primary components	**- Thyristor switch** **- Synchronization circuit inverter/bypass utility**		
Bypass voltage limits	**- 15% - +10% of nominal**		
Frequency tracking range	**+/- 2, 4 or 6% of nominal, selectable**		
Slew rate	**1Hz/s or 5Hz/s, selectable**		
Bypass Miniature circuit breaker (MCB)	**A**	**32**	**63**
Overload capability on bypass, 1 minute/10 minutes	**A**	**45/30**	**70/60**

Customer interface connections	
Potential free contacts	**Four open-collector contacts signaling following alarms:** **- bypass active** **- mains failure** **- battery low** **- general alarm**
Serial port (on Delta 9 pin connector)	**For serial communication**
Input terminals for	**- Emergency shutdown** **- Battery extension Miniature Circuit Breaker alarm wiring**

Controls, signals and alarms	
Front	**Rear**
Operation/Alarm : green/red LED LCD screen : 2 x 16 characters Push-buttons Buzzer (resettable) * = optional	3 optional slots for : RS232 interface card (std installed) : Potential free contacts* : SNMP* : RPA* redundant parallel architecture On/off switch Manual bypass switch Input/Output terminals DC connector for external batteries Line circuit breaker Bypass circuit breaker

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 serial communication link is no longer available to the user.

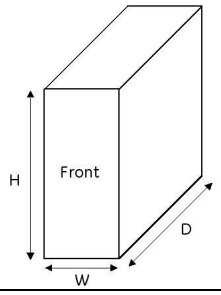
Relay card
The relay plug-in card can be installed in the rear panel of the UPS. The card is provided with four potential free contacts representing: battery low, bypass active, utility failure and general alarm.

Connectivity products
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 AS/400, IBM OS/2, LINUX.
Please contact GE for specific information.

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

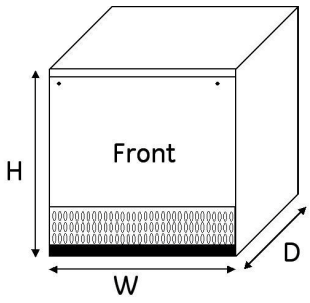
UPS Dimensions

Model	Dimensions Inch (mm)			UPS weight
	H	W	D	lbs (kg)
LP 6-11U924	26.8 (681)	12.3 (323)	28.7 (729)	198 (90)
LP 6-11U924/120	39.2 (996)	12.3 (323)	28.7 (729)	354 (161)
LP 6-11U924/277	39.2 (996)	12.3 (323)	28.7 (729)	304 (138)
LP 10-11U924	26.8 (681)	12.3 (323)	28.7 (729)	251 (114)
LP 10-11U924/120	39.2 (996)	12.3 (323)	28.7 (729)	405 (184)
LP 10-11U924/277	39.2 (996)	12.3 (323)	28.7 (729)	354 (161)



External Battery

UPS Model	Battery Details		Battery cabinet dimension Inch (mm)			Weight of Cabinet + Batteries lbs (kg)
	No. of batteries	Battery part number	H	W	D	
LP 6-11U924 LP 6-11U924/120 LP 6-11U924/277	20	BATLP116-924	43 (1092)	40 (1076)	32.5 (826)	1538 (699)
LP 10-11U924 LP 10-11U924/120 LP 10-11U924/277	20	BATLP1110-924	43 (1092)	40 (1076)	32.5 (826)	1764 (802)



UPS block diagram, protections and cable sections