

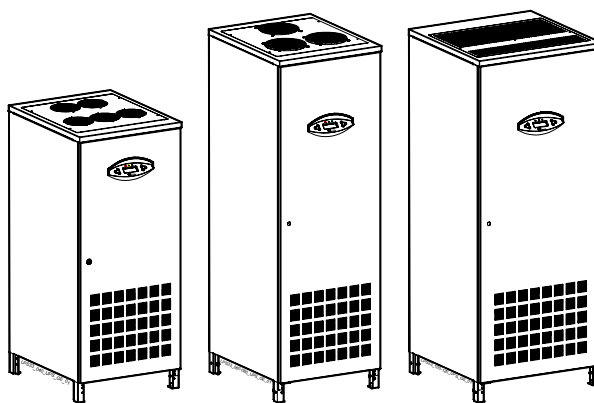
GE Consumer & Industrial
Power Protection

Technical Data Sheets

Digital Energy™ Uninterruptible Power Supply

LP 33 Series / 40 – 60 – 80 – 100 – 120 kVA

400 VAC CE – Series 0



Manufactured by:

GE Digital Energy
General Electric Company
CH – 6595 Riazzino (Locarno)
Switzerland
T +41 (0)91 / 850 51 51
F +41 (0)91 / 850 51 44

www.gedigitalenergy.com



GE imagination at work



GENERAL DATA						
Topology	VFI-SS-111, double conversion					
Nominal output apparent power at PF=0.6...0.8 lag.	kVA	40	60	80	100	120
Nominal output effective power at PF=0.8 lag.	kW	32	48	64	80	96
Overall efficiency at 100% load in VFI mode	%	92.8	93.3	92.8	93	93
Overall efficiency at 100% load in ECO mode	%	99	98.8	99	99	99
Heat dissipation at 100% load in VFI mode, PF=0.8 lag. and charged battery	kW	2.48	3.45	4.97	6.02	7.23
Cooling air (25°C ÷ 30°C)	m³/h	725	1010	1450	1760	2110
Audible noise level	dB(A)	64	67	67	70	70
Battery type	Valve regulated lead-acid (VRLA)					
Operating temperature range	UPS: 0°C ÷ 40°C					
Storage temperature range	-25°C ÷ +55°C					
Relative humidity	Max. 95% (non-condensing)					
Max. altitude without power derating	1000m					
Power derating (according to IEC 62040-3)	1500m: -5% / 2000m: -9% / 2500m: -14% / 3000m: -18%					
Protection degree	IP 20 (IEC 60529)					
Standards	EN 50091 / IEC 62040, CE marking					
EMC	EN 50091-2 / IEC 62040-2 Class A					
Electrostatic discharge immunity	4kV contact / 8kV air discharge					
Internal protection	All live parts shrouded					
Transport	Cabinet suitable for handling by forklift					
Colour	RAL 9003 (white)					
Installation	Can be positioned against a wall and floor fixed					
Service access	Front access only					
External cable connections	Bottom					
Cooling	Forced front to top by internal blower					
Paralleling (RPA version)	Up to 4 units parallelable for redundancy or capacity in RPA configuration (optional)					

RECTIFIER						
Rectifier bridge	Three phase					
Standard input voltage	Nominal: 3 x 380V / 400V / 415V + N Rectifier accepted ph-ph voltage range: 320V ÷ 460V					
Input frequency	50/60Hz +/-10% (45 ÷ 66 Hz)					
Input power factor	0.98 lag.					
Input current THD at 20% - 100% load	<10% (optional <5%)					
Output voltage tolerance	+/- 1%					
Battery ripple current	<200 mA (pk-pk)					
Battery charging characteristic	IU (DIN 41773), T° compensated floating voltage					
Battery charging current limit	Programmable					
Input power data	kVA	40	60	80	100	120
Input power at inverter nominal load, PF=0.8 lag. and charged battery	kW	34.5	51.5	69	86	103.2
Max. input power at inverter nominal load and max. battery recharge current (programmable)	kW	43.1	60.1	77.6	94.6	111.8
Max. battery charging current (programmable)	A	15	15	15	15	15

BATTERY						
Battery type	Valve regulated lead-acid (VRLA)					
Number of 12V blocks, 6 cells/block	40, placed in external cabinets					
Float voltage at 20°C	2 x 273 VDC					
Min. discharge voltage (programmable)	1.65V / cell					
Recharge time	6 ÷ 8 hours					
Automatic and manual battery test	Standard					
Common battery in parallel system	Up to 4 units					
Battery power data	kVA	40	60	80	100	120
DC power at full load and PF=0.8 lag.	kW	34	51	68	85.1	102.2
DC power at full typical computer load (PF=0.66 lag.)	kW	28	42.1	56.2	70.2	84.3
Matching battery cabinets	See optional features on page 3					

INVERTER	
Nominal output power at PF=0.6 ... 0.8 lag.	40 – 60 – 80 - 100 - 120 kVA
Nominal output voltage (on site programmable)	3 x 380V / 400V / 415V + N
Inverter bridge	IGBT technology
Output waveform	Sine wave
Output voltage tolerance:	
- static	+/- 1%
- dynamic (at load step 0 – 100 – 0%)	+/- 1%
- dynamic (at load step 0 – 50 – 0%).....	+/- 0.5%
- recovery time to +/-1%	<3 ms
- output voltage THD for 100% linear load	<1%
- output voltage THD for 100% non-linear load (EN 50091)	<2%
Output voltage tolerance at 100% unbalanced load (Ph-N)	+/- 3%
Output frequency	50/60 Hz (selectable)
Output frequency tolerance:	
- free-running	+/- 0.1%
- with mains synchronisation adjustable to	+/- 4%
Phase displacement:	
- at 100% balanced load	120°: +/- 1%
- at 100% unbalanced load.....	120°: +/- 2%
Overload capability (at PF=0.8)	125% - 10 minutes, 150% - 1 minute
Short-circuit characteristic	Electronic short-circuit protection, current limit to 2.2 times In for 100 ms
MTCB clearance capability (selectivity)	20% In within 5-10 ms (with MTCB class C)
Crest factor	>3:1

BYPASS	
Input connection	- Common input (Rectifier & Bypass) - Dual input (optional)
Primary components	- Static switch (SCR) on bypass - Electromechanic contactors (backfeed protection) on bypass and inverter - 2 manual switches for maintenance bypass
Voltage limits for inverter/bypass load transfers	+/- 10% (adjustable)
Overload on bypass	200% for 5 minutes 40 kVA: 35 times In for 10 ms, non repetitive 60-80 kVA: 45 times In for 10 ms, non repetitive

INTERFACING	
Potential free contacts	- 4 - 28 user settable signals
Serial channel RS232 (on Delta 9 pin connector)	Standard
EPO (Emergency Power Off)	Standard
Extended Customer Interface Card (optional)	- Genset-On contact - 6 potential free alarm contacts - 1 auxiliary contact

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

FRONT PANEL CONTROLS, SIGNALS AND ALARMS



LCD SCREEN

Shows the UPS data system data, events messages and UPS setting.

The data is displayed on 4 rows, 20 characters each, allowing the operator to select between *English, German, French, Spanish, Italian, Finnish* or *Polish* language.

CONTROL PANEL

<i>Metering</i>	Electrical parameters, operating statistics and information screens.
<i>Alarm</i>	Events (alarms, messages, commands, handling, etc.) and resets general alarm / buzzer.
<i>Menu</i>	Settings, LED-test and commands.
+	Scroll to following screen.
-	Scroll to previous screen.
<i>Enter</i>	Confirms the selected command.

INDICATION LED'S

<i>Alarm (red)</i>	On:	No mains available. Load supply at risk due to: - Battery empty; - Overtemperature; - Overload.
<i>Warning (yellow)</i>	Blinking:	Alarm not jeopardizing load supply.
<i>Operation (green)</i>	On:	LOAD ON INVERTER
	Blinking:	SERVICE REQUIRED

OPTIONS

BUILT-IN UPS OPTIONS:

1. Customer Interface
2. RPA kit
3. Separate mains input (one for rectifier / one for bypass)
4. Input THDI <5%

COMMUNICATION:

1. Advanced SNMP Card
2. JUMP software suite
3. IRIS service
4. Modbus RTU Interface

OPTIONS IN ADDITIONAL CABINETS:

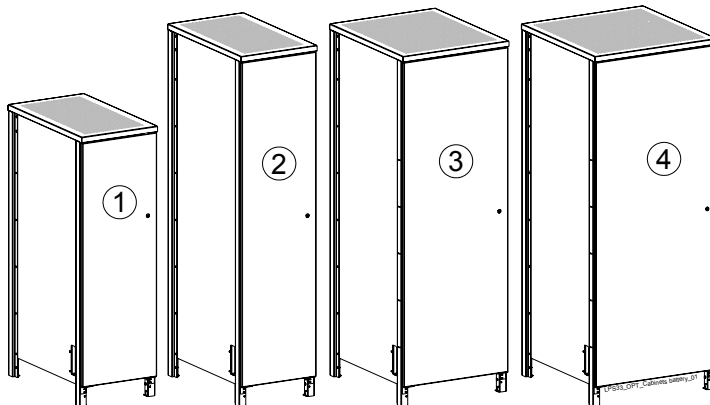
1. Empty battery cabinets

Dimensions (WxDxH): ① 430x725x1402

② 430x725x1802

③ 600x725x1802

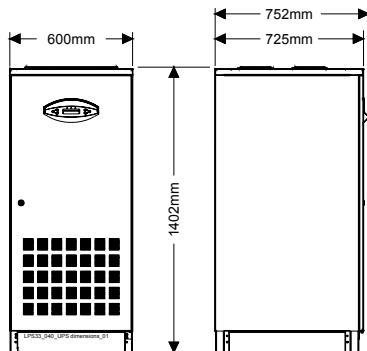
④ 780x725x1802



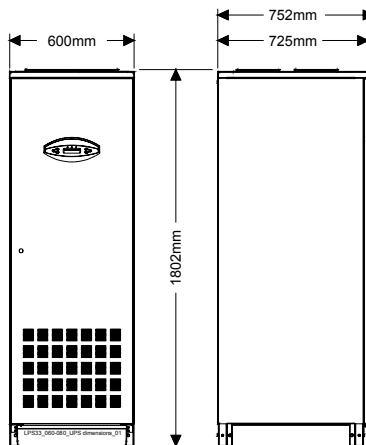
BATTERY TABLE			
UPS rating	Battery Capacity (High rate battery)	Autonomy time	Cabinet
40 kVA	22 Ah	8 minutes	①
	33 Ah	12 minutes	
60 kVA	33 Ah	9 minutes	②
	50 Ah	12 minutes	
	66 Ah (2x33Ah)	19 minutes	③
80 kVA	50 Ah	10 minutes	③
	66 Ah (2x33Ah)	12 minutes	
100 kVA	66 Ah (2x33Ah)	10 minutes	④
120 kVA	66 Ah (2x33Ah)	9 minutes	④

TECHNICAL DATA

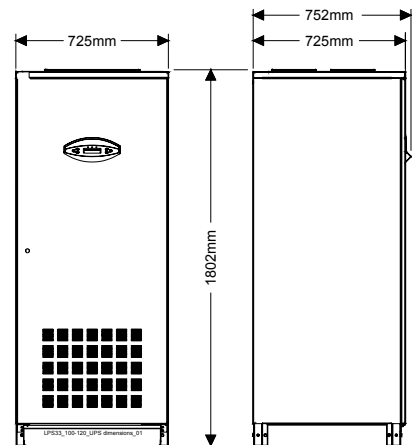
LP 33 Series / 40 kVA



LP 33 Series / 60 & 80 kVA



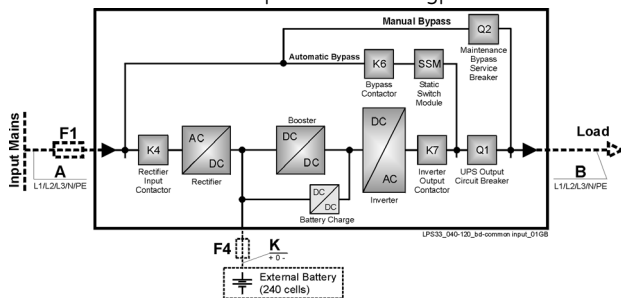
LP 33 Series / 100 & 120 kVA



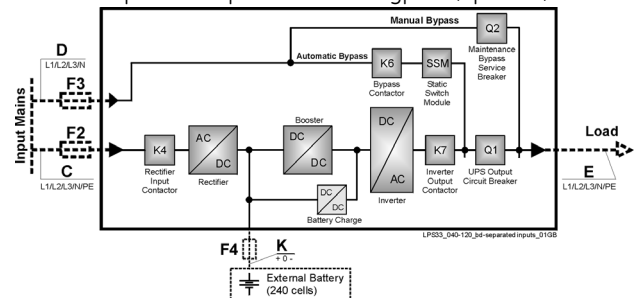
UPS rating	40 kVA	60 kVA	80 kVA	100 kVA (Preliminary!)	120 kVA (Preliminary!)
UPS Weight	220 Kg	280 Kg	290 Kg	400 Kg	450 Kg
UPS floor loading	510 Kg/m ²	644 Kg/m ²	667 Kg/m ²	760 Kg/m ²	856 Kg/m ²
UPS with standard shipping	295 Kg	355 Kg	375 Kg	500 Kg	550 Kg

UPS BLOCK DIAGRAM, PROTECTIONS AND CABLE SECTIONS

Common input Rectifier & Bypass



Separated input Rectifier & Bypass (optional)



Protections and cable sections

Protections for mains voltages
3x380/220V, 3x400/230V, 3x415/240V

Fuses AgL or equivalent MTCB

kVA	Fuses AgL or equivalent MTCB			
	F1	F2	F3	F4
40	3 x 63 A	3 x 63 A	3 x 63 A	3 x 80 A
60	3 x 100 A	3 x 100 A	3 x 100 A	3 x 125 A
80	3 x 125 A	3 x 125 A	3 x 125 A	3 x 160 A
100	3 x 160 A	3 x 160 A	3 x 160 A	3 x 200 A
120	3 x 200 A	3 x 200 A	3 x 200 A	3 x 250 A

Cable sections A, B, C, D, E and K
recommended by European Standards
Alternatively, local standards to be respected

Cable sections (mm²)

kVA	Cable sections (mm ²)			
	A / B / C	D	E	K
40	5 x 10	4 x 10	5 x 10	4 x 16
60	4 x 25 + 16	4 x 25	4 x 25 + 16	3 x 35 + 25
80	4 x 35 + 25	4 x 35	4 x 35 + 25	3 x 50 + 25
100	4 x 50 + 25	4 x 50	4 x 50 + 25	3 x 70 + 35
120	4 x 70 + 35	4 x 70	4 x 70 + 35	3 x 120 + 70

SEV/ASE cable sections recommended in Switzerland (mm²)

kVA	A / B / C	D	E	K
40	5 x 16	4 x 16	5 x 16	3 x 25 + 16
60	4 x 35 + 25	4 x 35	4 x 35 + 25	3 x 50 + 25
80	4 x 50 + 25	4 x 50	4 x 50 + 25	3 x 70 + 35
100	4 x 70 + 35	4 x 70	4 x 70 + 35	3 x 95 + 50
120	4 x 95 + 50	4 x 95	4 x 95 + 50	3 x 150 + 95

F1, F2, F3, F4, A, B, C, D, E, (K): supplied by customer

K: supplied by GE only with battery

F4: can be supplied by GE.