

GE Digital Energy
Power Quality

Technical data sheet

Digital Energy™ Uninterruptible Power Supply
VH700 - 1000 - 1500 - 2000 UL



A product by:

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GE imagination at work



General data					
Topology	VFI, on line double conversion				
Nominal output rating	VA/W	700/630	1000/900	1500/1350	1920/1740
Overall efficiency at nominal load	%	>87			
Heat dissipation at inverter nominal load, PF=0.9. and charged battery	W	86	123	184	237
Cooling air (77-86°F)	CFM	15	21	32	41
Audible noise level at one meter	dB(A)	< 45 dB(A), load and temperature dependent			
Operating temperature range	32 to 104°F (0 to +40°C) 59-77 °F recommended for batteries)				
Storage temperature range	-4 to 122°F (-20°C to +50°C)				
Relative humidity Max.	20-95% (non-condensing)				
Protection degree	Steel-plastic / IP20				
Safety	UL 1778, 4 th Edition				
EMC	FCC Part-15, Class B				
Surge capacity	EN61000-4-5: 6kV line-line / 6kV line-earth				
Electrostatic discharge immunity	EN 61000-4-2, 4kV contact / 15kV air discharge				
Transport	On pallet / Tower and rack mountable				
Colour	RAL 9005 (black)				
Outlet connectors	NEMA 5-20R (additional L5-20R in 2000 VA)				
Inlet connectors	IEC-C14 in 700-1000VA and C20 in 1500-2000VA				
Cooling	Forced air				

Input converter (rectifier + power factor correction)					
Nominal AC input voltage	120V				
Input frequency range	45 - 66 Hz				
Power factor	> 0.99				
THDi	< 6%				
Nominal input current (no charging, U _{in} = nominal)	Adc	6.6	9.1	13.9	16
Inrush current	None				
DC output voltage	2 x 210V				

Battery charger					
Battery charging characteristic	Constant current charging until boost voltage, then float voltage charging				
AC input voltage range	60 to 140V				
DC output voltage	Vdc	40.5	81		
Output current limitation	Adc	1.5			
Recharge time	3 hours for 90% capacity, standard battery				

Battery data					
Battery type	Sealed lead acid, VRLA				
Float voltage at 25°C	Vdc	40.5	81		
Number & rating of 12V batteries (standard version)		3*7Ah	3*9Ah	6*7Ah	6*9Ah
Standard backup time at nominal resistive load	min	8	8	7.2	8
End of discharging voltage (Vdc/cell)	Vdc	1.66			
Standard backup extensions (Table.1 for backup time)		NO	YES	YES	YES

Output converter (inverter)					
Input voltage range	Vdc	200-220			
Nominal output power at PF=0.9	VA	700	1000	1500	1920
Nominal output power with resistive load	W	630	900	1350	1740
Nominal AC output voltage	Vac	120			
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%	2ms				
Overload capability (battery operation)	110% during 4 minutes, 150% during 2 seconds				
Short circuit current capability (app. 200ms)	2.1 times nominal current during app. 200 ms				
Output frequency	50/60 Hz auto selectable (Default 60 Hz during cold start)				
Output frequency tolerance	± 0.05% nominal, unless synchronized with mains				
Frequency tracking range	± 10% default (± 2% selectable)				
Max. phase shift difference input-output	< 1° typical (max. 7° during tracking frequency range)				
Harmonic distortion with linear load	< 1%				
Harmonic distortion with non-linear load	< 6%				
Power factor range	0.7 to 1 (Lag & Lead)				
Crest factor handling capability of non-linear load	Up to 3:1				
Output power derating altitude	Up to 1000m no derating Above 1000m 12.5% per 1000m, max. 4000m				
Protection	Automatic transfer to bypass (if available) In case of: - internal circuit failure - over temperature - overload / short circuit Output protected against connection to the mains				
Inverter bridge	PWM and IGBT technology				

Bypass	
Primary Element	Static switch
Bypass voltage limits	-15% to +10% of selected output voltage
Frequency tracking range	± 10% default (± 2% selectable) of selected output frequency
Slew rate	2 Hz/sec
Overload capability on bypass	120% ≥ 3min. 150% ≥ 1 min

Interfacing	
Potential free contacts (optional)	Four change-over contacts signalling following alarms: - bypass active - mains failure - battery low - general alarm (programmable)
Input terminals for	- Remote Power Off - Battery extension pack DC connector

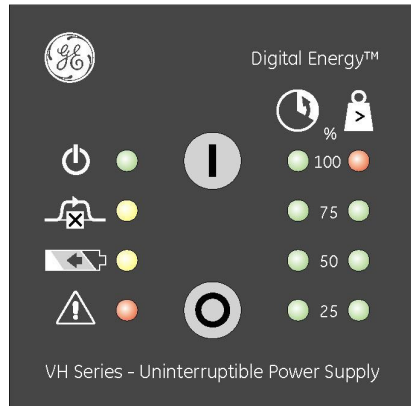
Note: all indicated values are typical. Variations may be found from one unit to another.

Controls, signals and alarms

Front panel details

On / Off Push – buttons
UPS ON/standby LED
On Bypass LED
On Battery LED
Alarm LED (red)
Runtime LED bar
Load level LED bar

Front panel

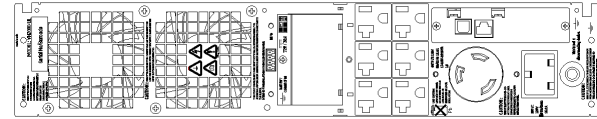


Rear panel details

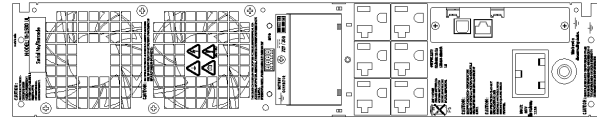
Input thermal circuit breaker
Input / Output sockets
DC connector for batteries
Remote External Power Off Contacts (REPO)
USB interface card
USB/RS232/Relay Card *
SNMP Card*
**option*

Rear panel

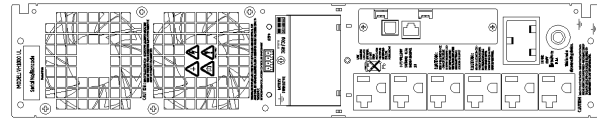
2000VA



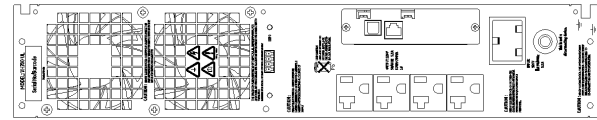
1500VA



1000VA



700VA



Optional features

SNMP interface card

An SNMP interface adapter can be placed in the SNMP slot in the rear panel of the UPS, which allows the data interface to be connected directly to an Ethernet or Web.

USB/RS232/Relay Card

The card is provided with a USB connector, a 9-pole sub-D connector and four potential free changeover contacts, representing: mains failure, general alarm, battery low and bypass active.

Battery modules – extended runtime

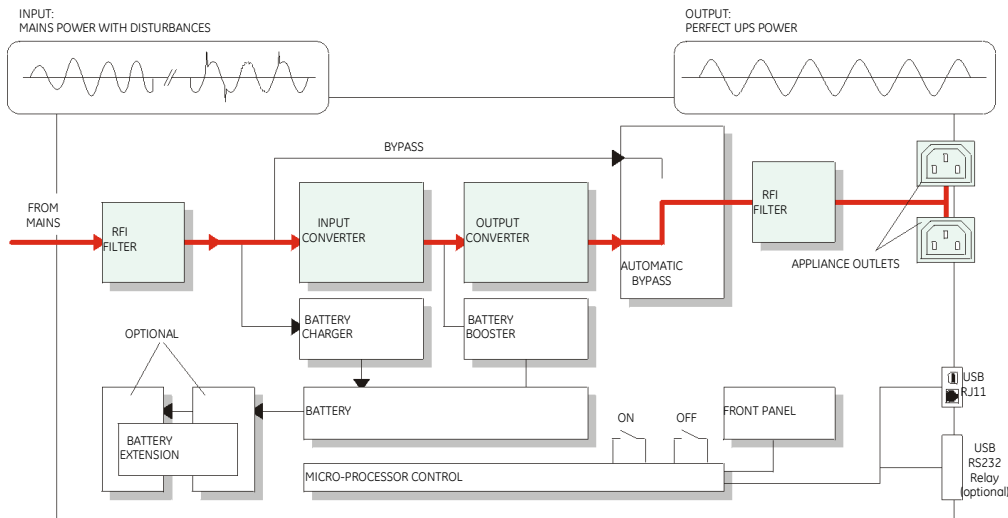
Additional battery modules (up to 3) may be connected in parallel in order to achieve a longer runtime. Every battery module is equipped with its DC cabling and it makes connection between modules very easy and simple.

Increasing of total battery capacity will correspond to a longer recharging time.

Table.1 Dimensions and battery run times

UPS Model	Backup time (min.)	Total capacity (Ah)	Nr. of extra battery cabinets	Battery cabinet			UPS cabinet				
				Dimensions (HxWxD)	Weight	Shipping weight	Dimensions (HxWxD)	Weight	Shipping weight		
VH700	8	7	---	---			3.4x17.2x18.5 inch 87x438x470 mm	35 lbs/16 kg	49 lbs/22kg		
VH1000	8	9	---	3.4x17.2x18.5 inch 87x438x470 mm	60 lbs 27kg	68 lbs 31kg		37 lbs/17kg	53 lbs/23kg		
	26	23	1				3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	64 lbs/29kg	73 lbs/33kg
	48	37	2								
VH1500	66	51	3	3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	64 lbs/29kg	73 lbs/33kg			
	7	7	---								
	35	21	1								
VH2000	63	35	2	3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	64 lbs/29kg	73 lbs/33kg			
	88	49	3								
	8	9	---								
	26	23	1								
VH2000	50	37	2	3.4x17.2x21.3 inch 87x438x540 mm	101 lbs 46kg	110 lbs 50kg	71 lbs/32kg	79 lbs/36kg			
	74	51	3								

UPS block diagram, protections and cable sections



Recommended external fusing of input wiring		Cable sections input and output recommended by NEC standards Alternatively, local standards to be respected	
UPS Model	Mains / Bypass input	CABLE SECTIONS	
		mm ²	AWG
VH 700	15A Class "B" MCB	1.8	16
VH 1000	15A Class "B" MCB	1.8	16
VH 1500	20A Class "B" MCB	2.5	14
VH 2000	20A Class "B" MCB	2.5	14