

Genvolt
high voltage power supplies



GN1000 Series High Voltage DC Power Supply

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Summary



GN1000 Series High Voltage DC Power Supply

The Genvolt GN1000 series is a rugged modularised range of AC input, DC High Voltage supplies, designed to operate from a universal mains input from 85VAC to 256VAC 50/60Hz. Power output options are available from 500W to 1kW and Voltage output options are available from 500V to 50kV.

Features

The GN1000 series has an active boost-style Power Factor Correction. This offers a very low harmonic distortion at mains frequencies with a power factor of up to 0.99. In addition, with the soft switching technique, the power supply has high efficiency and low EMI and RFI noise emission. It has been designed with novel method of variable frequency phase shifted pulse width modulation (VFFPWM), with the pulse-by-pulse current limiting action and fast response to the voltage and current demands. It can also be operated at higher power levels with a lower power loss than normal power supply. The transformer of this power supply has PCB-type windings providing reliable isolation and precise assembly. The high-voltage stack is encapsulated in a metal box with an isolated resin that will reduce EMI and RFI noise and give excellent isolation from the other internal parts.

The modules have a fixed polarity output which should be specified at the time of ordering using the “Model Finder” table.

Operation and protection

The GN1000 series High Voltage Power Supply is able to operate in both Voltage and Current Control modes with fast active crossover between them.

It has protection against output short circuits, arcs, over temperature, Input/output overvoltage, Overload and discrepancy between setpoint and process value. These protections allow the GN1000 series High Voltage Power Supply to operate safely. In addition, It has a Hardwired Interlock input pin for safer operation.

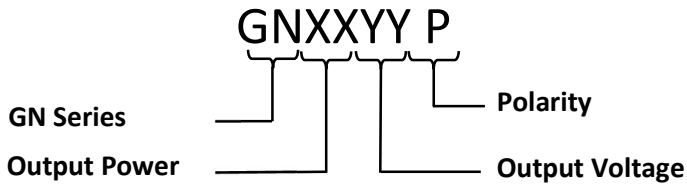
Technical Specification

Input	
AC input voltage range	85VAC to 256VAC, 50-60Hz
Power Factor	FL 0.99 NL 0.98
Output polarity	Positive (+ve) or Negative (-ve)
Voltage load regulation	0.01% of full voltage for a no load to full load change
Voltage line regulation	+/- 0.01% of full voltage over the specified input voltage range
Current load regulation	0.01% from 0V to full voltage
Current line regulation	+/- 0.02% of full current over the specified input voltage range per 8 hours after
Voltage ripple	0.3% peak to peak of output voltage
Current stability	0.02% per 8hrs after ½hr warm up
Temperature coefficient	100 ppm per °C
Temperature	Operating 0°C to 45°C Storage -20°C to +85°C
Interlock	Open Interlock will shut down unit
Circuit Protection	Overvoltage, Overcurrent, Over temperature, out of regulation
Relative humidity	Non condensing
Standard	
Control	Logic level for high voltage enable/disable.
Over voltage protection	Overvoltage conditions can be caused by excessive input program signal. If an overvoltage condition is detected, the power supply is latched OFF until input power or HV ON is reset.
PS Fault condition	A PS fault indicator and a PS fault output on J1, indicate an OVP, OVL, OVT or a regulation error.
PF and Universal input	The input voltage of the GN1000 can operate within the range from 85VAC To 265VAC. The power factor is actively corrected across the entire range and is better than 0.99 at full load.
Internal EMI Filter	An internal EMI filter and fuse provide protection against line voltage surges and power supply faults.

Technical Specification

Remote operating features			
Remote programming	Allows remote adjustment of the output voltage and current, via an external voltage source.		
Remote monitor	Allows remote monitoring of the output voltage and current.		
High voltage enable / disable	Allows remote ON/OFF control of the high voltage.		
10VDC Reference	A +10VDC is provided for remote programming via a potentiometer or voltage divider.		
Mechanical			
Weight	Model specific, approximately 5.9Kgs		
Dimensions	140 mm (H) x 150mm (W) x 330mm (L)		
Power input connector	IEC320 with mating connector x 2 Metres		
HV output connector	Proprietary HV Connector		
Control interface	15 pin 'D' connector (Male)		
Model Finder Table			
Maximum Voltage	Maximum Current	Polarity	Model Number
500V	2000mA	+ve or -ve	GN1000.5P (+ve) GN1000.5N (-ve)
1kV	1000mA	+ve or -ve	GN1001P (+ve) GN1001N (-ve)
5kV	200mA	+ve or -ve	GN1005P (+ve) GN1005N (-ve)
10kV	100mA	+ve or -ve	GN1010P (+ve) GN1010N (-ve)
20kV	50mA	+ve or -ve	GN1020P (+ve) GN1020N (-ve)
30kV	33mA	+ve or -ve	GN1030P (+ve) GN1030N (-ve)
40kV	25mA	+ve or -ve	GN1040P (+ve) GN1040N (-ve)
50kV	20mA	+ve or -ve	GN1050P (+ve) GN1050N (-ve)

Model Number Coding



Examples: 10 = 1kW
05 = 500W

Example: 10 = 10kV





Label	Name	Function
1	Control Interface	Male 15 pin 'D' connector to control the power supply via a remote interface
2	Current adjustment	Precision current adjustment screw
3	Voltage Adjustment	Precision voltage adjustment screw
4	Mains power input	IEC320 with mating connector - Mains operated
5	HV Output connector	Proprietary HV output cable supplied
6	Earth Connection	M4 for earth bonding

Global Presence



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