

Electron Beam High Voltage Power Supply Range



The Genvolt range of Electron Beam power supplies consists of a range of high powered PSU's.

Designed by High Voltage engineers at Genvolt in the United Kingdom and manufactured and tested to our exacting standards.

Power ranges available at present are from 60kV all the way up to 200kV. The DC filament power supply and the Bias power supply are integrated within the mechanical build.

The current of the filament and bias voltages are directly measured at high potential, then the measurement is sent via a fibre optic connection to the control system.

All the power supplies within the range adopt high frequency inversion and intelligent control technologies, alongside several patented technologies, featuring advanced techniques, inbuilt redundancies and high performance.

The high power inverter technology adopted by the Genvolt range is a resonant inverter designed and manufactured by Genvolt, which incorporates; integrated input rectification, filtering and inversion on a single radiator.

The unit can adopt air cooling or water cooling technologies depending on user requirements.

The high voltage transformer is a patented rectification transformer with low stored energy and high reliability.

The Genvolt range has complete protection inbuilt including, overvoltage, and overcurrent, overheat and discharge detection. Which all enable the unit to perform in a continuously over an extended period of time.

Example Specification

Genvolt Electron Beam High Voltage Power Supply Range

Product Specification

1. Input voltage: AC three phase 360-440V, + neutral

2. High voltage power supply
 - Output voltage: 200kV (-ve)
 - Output power: 3,6, 10, 15, 20, 30 and 40kW
 - Stability of output voltage: <0.2%
 - RMS of high voltage ripple: <0.5%

3. Filament power supply
 - Output current: DC 0 - 50A
 - Output voltage: 0 - 20V
 - Stability of filament current: <0.5%

4. Bias power supply
 - Output current: maximum 0.5mA
 - Output voltage: DC 0 – 2kV
 - Stability of output voltage: <0.2%
 - RMS of output voltage ripple: <0.5%

5. Output current: 50, 100, 50, 200, 300 and 400mA
 - Stability of output current: <0.2%

6. Working mode: Continuous

7. Cooling method: water and forced air cooling

8. Working temperature: -10 to +40° C

9. Working Humidity: <90%, non-condensing

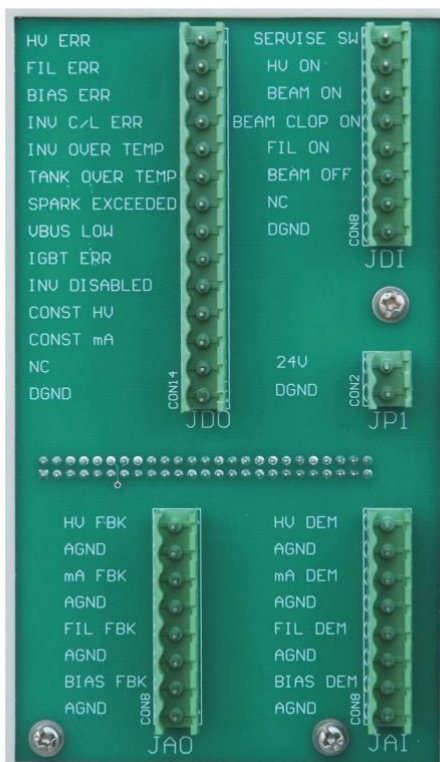
10. Dimensions: *Model dependent (on specification)*

11. Weight: *Model dependent (on specification)*

Product Features

- Integrated high voltage power supply, filament power supply and bias power supply
- High frequency Inverter technology has been adopted for all products
- Able to withstand discharge, short circuit and arc discharge for sustained periods of time
- Local and remote modes available
- Voltage ranges from 60kV to 200kV
- Output power ranges from 3kW to 40kW, giving the ability to fulfill the requirements of numerous applications, Electron Beam Welding, Smelting and Electron Beam Printing
- Flexible and custom high voltage output connector
- Standard bias voltage 2kV

User Interface Connector and Rear panel connections



Control ports

There are five sets of wiring terminals on the rear panel of the power supply, which are the ports for remote control of the power supply.

JD0 and JD1 are digital ports.

JA0 and JA1 are analogue ports.

JP1 is the supporting power supply providing 24V for external use.

The maximum current allowed for output is 500mA.

JD0 Status indication includes fault Indication and working status

JD1 Switch connector: initiation switch and indication. 14-pin connector.

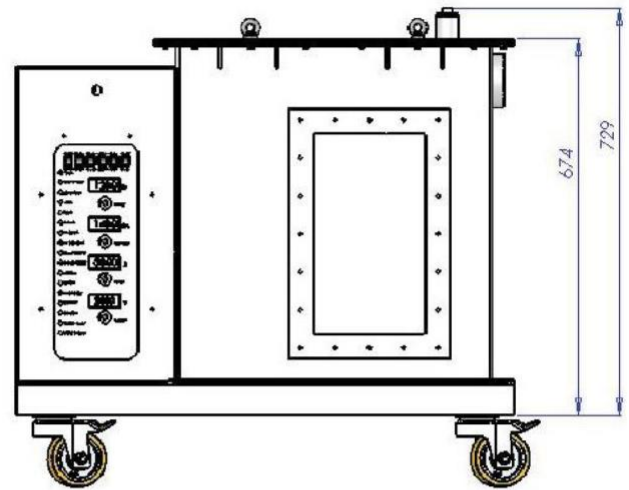
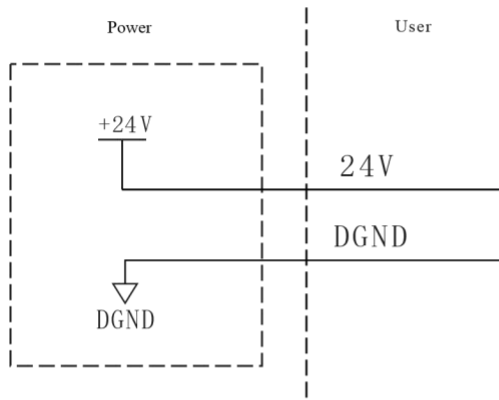
Working mode selection. 8-pin connector.

Genvolt Electron Beam High Voltage Power Supply Mechanical detail - typical

Pin#	Name	Remarks
1	24V	+24V DC
2	DGND	Digital Grounding

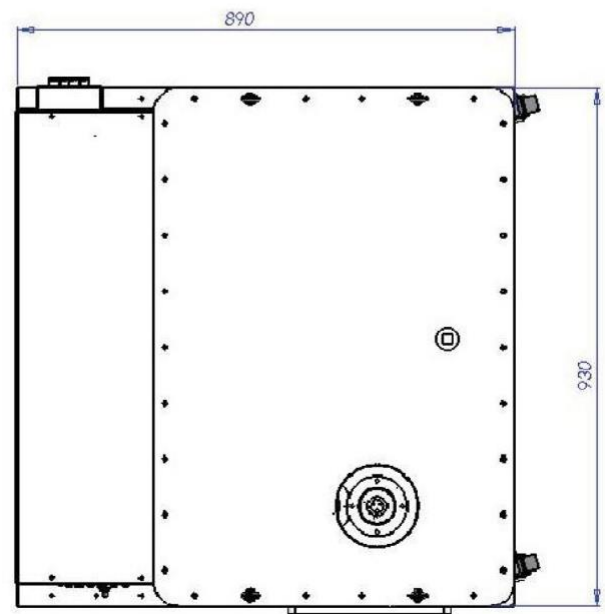
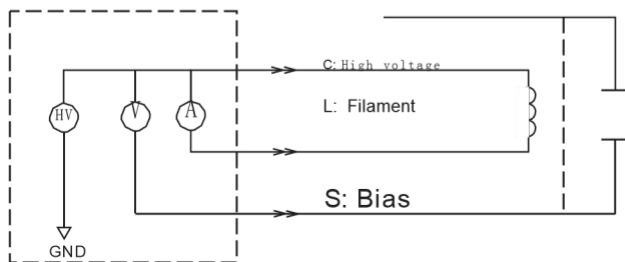
Front View

Diagram 5:



Note: the maximum output current of supporting power supply is 500mA.

High voltage connection



Genvolt Electron Beam High Voltage Power Supply Typical available user pin out connections

Pin#	Name	Remarks
1	HV ERR	High voltage error
2	FIL ERR	Filament power supply error
3	BIAS ERR INV	Bias power supply error
4	C/L ERR	overcurrent in inverter
5	INV OVER TEMP	Over temperature in inverter
6	TANK OVERTEMP	over temperature in oil tank
7	SPARK EXCEEDED	Continuous discharge
8	VBUS LOW	Low voltage of bulbar voltage
9	IGBT ERR IGBT	IGBT Error
10	INV DISABLED	Inverter is forbidden to initiate
11	CONST HV	Constant voltage output
12	CONST MA	Constant current output
13	NC	Not connect
14	DGND	Control grounding

Pin#	Name	Remarks
1	SERVISE SW	Switch between local and remote mode
2	HV ON	Initiate high voltage
3	BEAM ON	Bias control switch
4	BEAM CLOP ON	Bias adjustment mode control
5	FIL ON	Filament initiation switch
6	BIAS ON	Bias initiation switch
7	NC	Not connect
8	DGND	Control grounding