

High Voltage Generators for Electron Beam Welding

Multisource units

6 kW to 120 kW



Multisource
60kV 15kW model
Non-contractual photo



Multisource
60kV 40kW model
Non-contractual photo

Main information

- Compact & industrial design
- High efficiency
- Easy Start-up, "Ready to use" system
- Low stored energy* : 1J/kW

- Total protection against arcs, overloads & short circuits
- Adjustable recovery after an arc* : stop time and raising time
- Accurate metrology adjustment* :
 - output voltage calibration
 - output current calibration
 - parallel & serial compensation
- Flashless mode available
- Low Electromagnetic Interference (EMI)
- Low ripple + noise
- Outputs on CLAYMOUNT CA4 connector
- Resistance in series for output voltage

- Double resonance converter using IGBT
- 2 years warranty

(*): for main HV source

Description

With more than 15 years of experience in the design and the manufacturing of **Electron Beam Welding** power supplies, TECHNIX offers a complete range of electrical sources dedicated to this application. Based on the double-resonance technology, these power supplies offer many advantages in terms of performance, flexibility, reliability and price.

Multisource Unit models are offered for customers who are looking for a complete system of power supplies with a plug and play configuration, all integrated into one cabinet. All the models include an oil tank.

Multisource Unit power supplies include the following electrical sources:

- Main HV power supply
- Filament power supply
- Wehnelt / Bias power supply
- Bombardment power supply

Other voltages and other powers can be considered on demand.



Electrical specifications

Mains Voltage: 3 x 400V $\pm 10\%$ 50 – 60Hz + Earth

Polarity for Main HV source: Negative (earth reference)

Voltage regulation for Main HV source:

Load Regulation: better than 0.1% (for 10 – 100% load)

Line Regulation: better than 0.05% (for Mains Voltage $\pm 10\%$)

Current regulation for Main HV source:

Load Regulation: better than 0.05% (for 10 – 100% load)

Line Regulation: better than 0.05% (for Mains Voltage $\pm 10\%$)

Ripple + Noise for Main HV source: Less than 0.1% RMS

Stability (after one hour warm-up) for Main HV source:

0.1% / hour, 0.03% / 8 hours of operating with constant load and ambient temperature

Temperature Coefficient: 200ppm / °C

Operating Temperature: from 0 to 40°C

Stocking temperature : from -20°C to 40°C

CE Certification

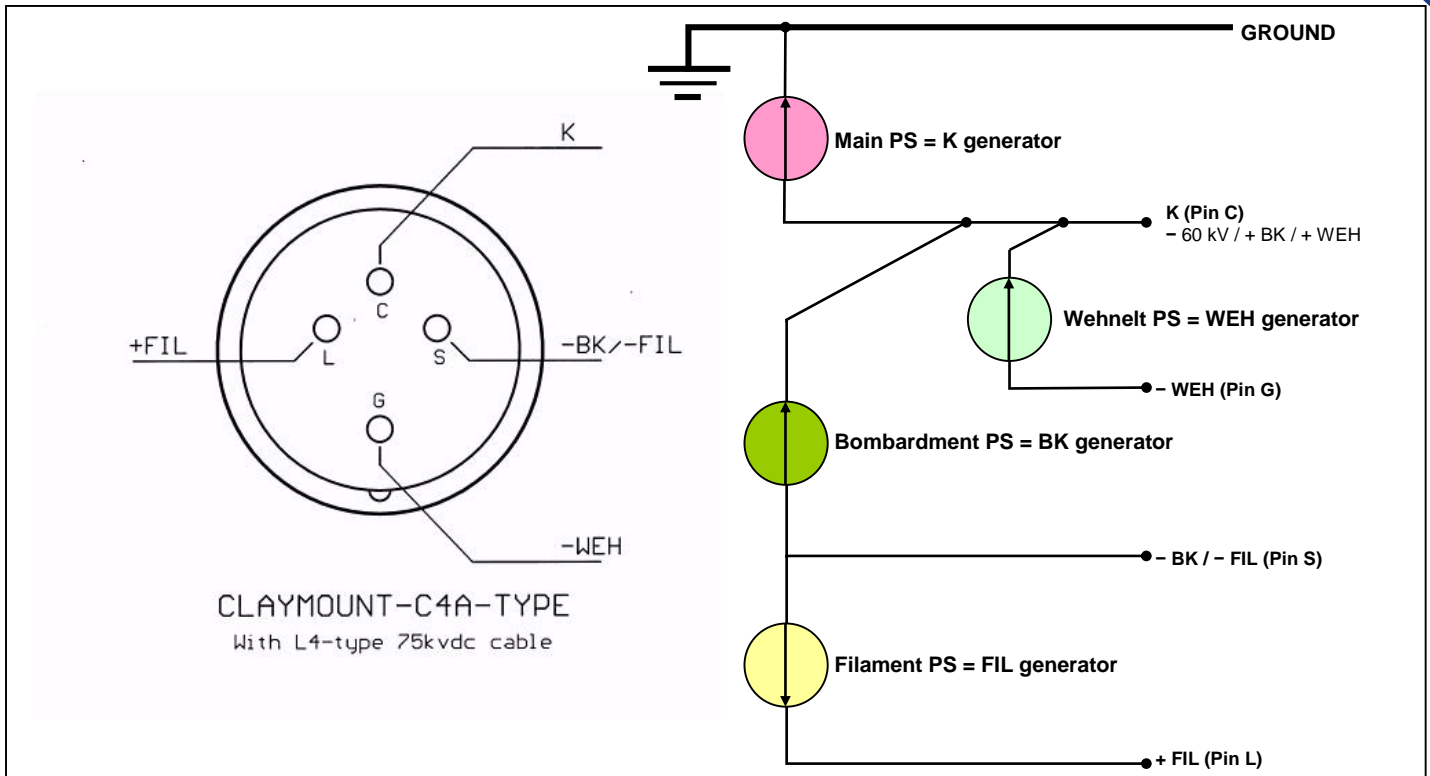
Standard configurations

Electrical source	Output voltage	Output power or current
Main HV Power Supply	From 0 to - 60kV or	6kW, 15kW, 20kW & 40kW+
	From 0 to - 45kV	6kW & 15kW+
Filament Power Supply	Up to 20V	From 0 to 15A
Wehnelt / Bias Power Supply	From 0 to 2kV	5W
	From 0 to 3kV	5W
	From 0 to 3.8kV	5W
Bombardment Power Supply	From 0 to 1kV	From 0 to 50mA
	From 0 to 1.7kV	From 0 to 80mA
	From 0 to 3kV	From 0 to 45mA

Other voltages and other powers can be considered [on demand](#).



Output connector



Control connectors



HV Control:

Analogic	0-6 V → 0 to 60 kV	HV Voltage Setting	Input	BNC(31)
Analogic	0-6 V → 0 to 60 kV	HV Voltage Measurement	Output	BNC(34)
Analogic	0-10 V → 0 to 260 mA	HV Current Measurement (1)	Output	BNC(35)
Digital	Logic levels	HV switching ON/OFF	Input	Pin 9,11 RC1
Digital	Logic levels	HV & Filament Inhibit	Input	Pin 2,4 RC1
Digital	Logic levels	HV OK/FAULT	Output	Pin 1,3 RC1
Digital	Logic levels	HV Voltage reached	Output	Pin 14 RC1
Digital	Logic levels	Arc detected	Output	Pin 6 RC1

Filament Control:

Analogic	0-10 V → 0 to 15A	Filament Current Setting	Input	BNC(32)
Analogic	0-10 V → 0 to 15A	Filament Current Measurement	Output	BNC(33)
Digital	Logic levels	Filament switching ON/OFF	Input	Pin 9,10 RC1
Digital	Logic levels	Filament OK/FAULT	Output	Pin 1,3 RC1
Digital	Logic levels	Filament & HV Inhibit	Input	Pin 2,4 RC1
Digital	Logic levels	Filament Current reached	Output	Pin 8 RC1

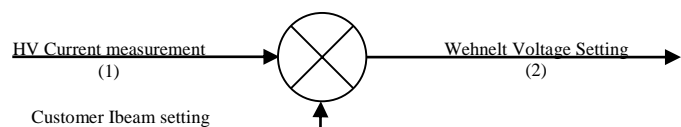
Bombardment Control:

Analogic	0-10 V → 0 to 50 mA	Bombardment Current Setting	Input	BNC(37)
Analogic	0-10 V → 0 to 50 mA	Bombard. Current Measurement	Output	BNC(40)
Analogic	0-10 V → 0 to 1kV	Bombardment Voltage Setting	Input	BNC(36)
Analogic	0-10 V → 0 to 1 kV	Bombard. Voltage Measurement	Output	BNC(39)
Digital	Logic levels	Bombard. switching ON/OFF	Input	Pin 9,10 RC2
Digital	Logic levels	Bombardment ON/OFF status	Output	Pin 1,3 RC2
Digital	Logic levels	Bombardment & Weh. Inhibit	Input	Pin 2,4 RC2
Digital	Logic levels	Bombardment OK/FAULT	Output	Pin 1,3 RC2

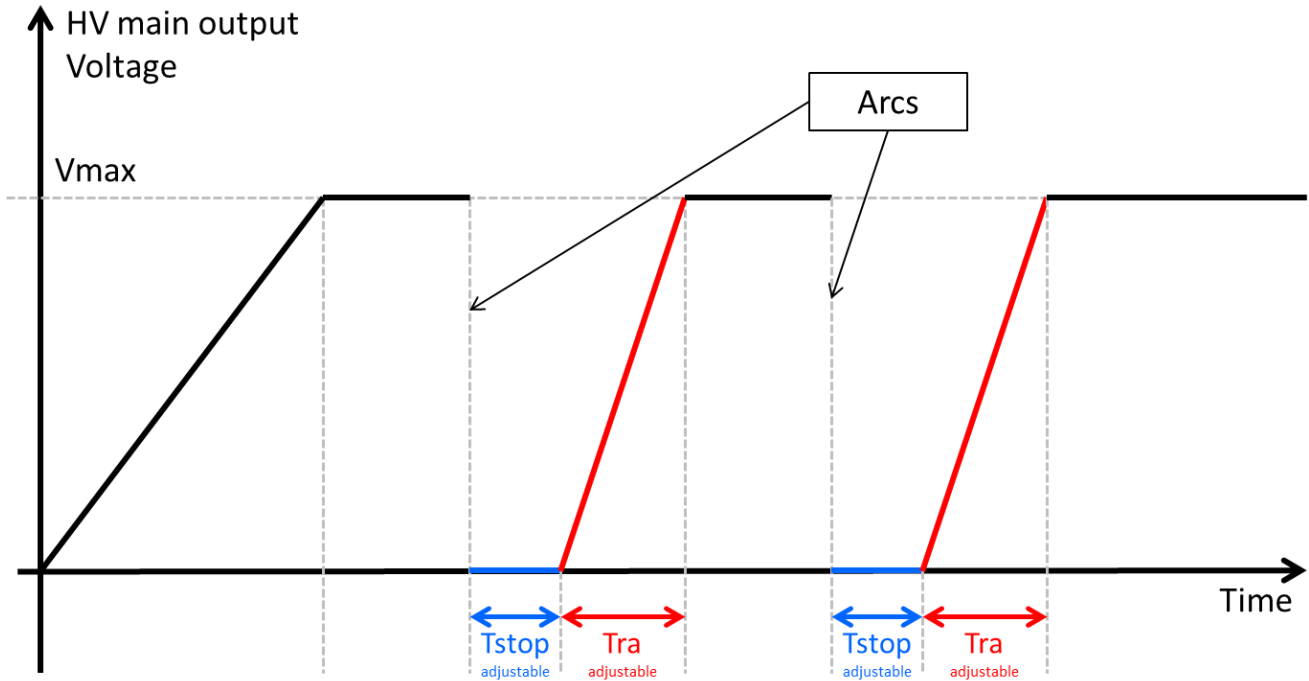
Wehnelt Control:

Analogic	0-10 V → 0 to -3 kV	Wehnelt Voltage Setting (2)	Input	BNC(38)
Analogic	0-10 V → 0 to -3 kV	Wehnelt Voltage Measurement	Output	BNC(41)
Digital	Logic levels	Wehnelt & BK Inhibit	Input	Pin 2,4 RC2
Digital	Logic levels	Wehnelt switching ON/OFF	Input	Pin 9,11 RC2

Beam Regulation: User will make it following this diagram:



Time adjustment setting for main HV source



T_{stop} : Time High Voltage is stopped after one arc - adjustable

T_{ra} : Raising Time of HV after a Stop provided from one arc - adjustable

