3kW, 6kW, 8kW, 10kW **SOLID STATE** E-Beam Power Supply with built in Emission Current Regulator.

The HVCEB series is designed to provide the ultimate in control & reliability for your process in one package.

**6,000 Watt All with Mercury Arc Control!**

**8kW & 10kW E-Beam with Multiple E-Gun Capability!**

**3,000 Watt E-Beam All with Mercury Arc Control!**

### Basic Features:
- HV Output & Filament all in one design. Rugged and Design to last!
- **Mercury Arc Control**
  - Suppression Rollback Ride-Thru Circuitry. Very low stored energy.
- Digital Front Panel Meters and Controls for Voltage, Current, and Filament.
- Self Protection from Arc, Over Voltage, Over Current, & Temperature.
- Remote Handheld available on 10kW for Easy Pre-Melt

### Remote:
- HV On/off apply +10v to +24V to Pin 4. Built in sequential filament and HV application.
- Current Ref. 0-10V for any rate controller. (*See remote control for details.*)

### Mechanicals:
- 7” Ht. 3kW Air Cooled, 19” Deep.
- 8-3/4” Ht 6kW Water Cooled, 21” Deep.
- 10. 5”Ht 10kW Water Cooled, 23” Deep.
- Weight: Only 38 to 53 lbs

### Filament:
- Automatic Emission Current Regulation
- 3-way Filament Control (Adjustable or fixed Standby Current, Maximum Current, Emission-Current). Local or remote control.
- Filament Power up to 650 watts (Consult Factory with your e-gun application).
- OEM and Custom Designs. Other Voltages and Power Levels available upon request.

---

High Voltage Concepts, LLC
577 North Main Street
Brewster, NY 10512
Phone: 845-278-8180
Fax: 845-278-8187
www.hvconcepts.com
All E-Beam Front Panel Function Description
8kW & 10kW have Hand-held Front Panel Remote for Easy Pre-Melt & Can Control Two E-Guns!

- Preset Button allows view of reference voltage & current in any mode HV On or off, Local or Remote
- Digital Voltage Meter & Voltage Control
- Digital Current Meter & Local Current Control for full manual use. Remote mode allows any type of Rate Controller to be used
- HV On off Command local mode. HV On off is Commanded by Rate Controller in remote mode.
- Filament Current Meter with Adjustable Preheat current, hands off automatically to emission current regulation during HV On & returns to Preheat upon HV off.
- Status Indicators for: Interlock, Temperature, Over Voltage, Over Current with first fault circuitry.
- E-Beam Units are equipped with a fast Arc rollback circuit and will ride thru all arcing with-out shut down.
- Circuit Breaker for Power On

6kWatt E-Beam Rear Panel Shown Below.
8kW & 10kW E-Beam Can Control Two Guns via Remote Controlled Filaments.

- Remote interface connector 37 pin Sub-D. *(See Remote Analog Interface for Details)*
- Air Circulator fan for low dissipation components
- High Voltage Output cables with Filament for easy e-gun connection.
- 6kW & 10kW Features a Water Cooled Main Drive Circuit while the 3kW is Air cooled only. Both are Thermally Protected providing the ultimate in reliability Rate: 1 gallon per minute, 400 joules/sec for water cooled units.
- Ground Connection to Vacuum Chamber
- Power Input Connector 208 VAC or 380 VAC 3 phase & N
Remote Analog Customer Interface (E-Beam Pin-Out)
37 Pin Sub-D Connector

Remote FEMALE SUB-D connector is on the back panel a Male Sub-D mate is provided.

1. **Voltage Reference**: Voltage Control for E-Beam remains with front panel control at all times unless specified.
2. **Current Reference**: 0-10 Volts Input =0 to Full Output Current. This Pin is not used to control current in 8kW & 10kW See Multi-E-Gun J7
3. **N.C.** This pin has no connection.
4. **Remote HV On-Off/Reset**: Apply and maintain any voltage in range (+8.5 volts minimum to +24 volts maximum) to turn on HV. This sequence will occur after application of stated voltage; Filament will energize in standby mode 7 seconds later HV will turn on. Upon removal of the stated voltage HV will turn off then 7 seconds later the filament will turn off.
5. **NC**. This pin has no connection.
6. **Remote kV Monitor**: 0-10 Volts = 0 to Full Output Voltage. Output Impedance of this device is 1k Ohms. This Function is available in any mode.
7. **Remote Over Voltage Fault Set-point Reference**: 0 to 5.0 Volts = 0 to Full Output Voltage over rides the internal Over Voltage setting which is fixed at 105% of the full output voltage. This function is available in any mode.
8. **Remote Over Current Fault Set-point Reference**: 0 to 5.0 Volts = 0 to Full Output Current over rides the internal Over Current setting which is fixed at 105% of the full output current. This function is available in any mode.
9. **+5 volts, 100mA Max**
10. **Filament Monitor**: 0-5 volts = 0- Full Current Amps this signal is present in all modes.
11. **+15 Volts** 20mA Max
12. **-15 Volts** 20mA Max
13. **Common**
14. **HV On Signal**: When HV On is commanded this pin goes Low. Its output impedance is 2k ohm, and the High position is +5 Volts. This signal is always present in Local and Remote control.
15. **Common**
16. **Local/Remote Command**: Pulling this pin LOW and holding will remove control from the front panel. The Front Panel Potentiometer References will be over ridden as well as the HV On Command. Meters will function normally and the Preset button will read the remote program reference inputs instead of the Front Panel Potentiometers. All LED function remains.
17. **Temperature**: This pin reads the temperature of the IGBT in the power driver. The measurement is in Kelvin/100. Room temperature will read 2.93V or 293° Kelvin. This function is available in any mode.
18. **NC**. This pin has no connection
19. **Remote Current Monitor**: 0-10Volts = 0 to Full Output Current. Output Impedance of this device is 1k Ohms. This function is available in any mode.
20. **Fault Signal**: When Fault is triggered this pin goes Low. Its output impedance is 2k ohm, and the High position is +5 Volts. This signal is always present in Local and Remote control. To clear fault cycle HV Off/Reset see pin 4.
21. **Common**
22. **+5 volts, 100mA Max**
23. **Remote Filament Reference Input**: Not used in units with rear preset potentiometer.
24. **Reference Voltage +10 Volts**: 5mA Max Current Draw.
25. **External Interlock**: This pin must be held LOW in order to operate power supply. A HIGH or an OPEN on this pin will trip the unit off via an Interlock FAULT and block the application of HV ON. This pin must be held LOW before the OFF/RESET command can be used to clear the fault. This function is always available.
26. **Remote High Voltage lamp On**: (+) Provides +24 volts source for a lamp when high voltage is enabled.
27. **Remote High Voltage lamp Return**: [-]Return for +24 volts lamp.
29. **Pump Voltage +24 volts**: (+) Provides +24 volts source for tube coolant pump relay. Other voltages are available.
30. **Filament On Remote**: Controlled by HV On-Off/Reset see pin 4.
31. **Filament Off Remote**: Controlled by HV On-Off/Reset see pin 4.
32. **Filament On Signal**: This pin is normally high (+5 Volts) with Filament OFF and Goes Low when Filament is ON.
33. **Common**
34. **Common**
35. **Common**
36. **& 37. Spare**
Remote Multi-E-Gun Control Customer Interface (8kW & 10kW Only)  
(J-7)  9 Pin Sub-D Connector

1. **Current Reference**: 0-10volt = 0-Full Current Output reference for E-Gun #1.
2. **Current Reference**: 0-10volt = 0-Full Current Output reference for E-Gun #2.
3. **Common**;
4. **Remote E-Gun Control**: Pull This pin Low and holding will remove Local Front panel selection of E-Guns to Remote Control Selection of E-Guns.
5. **Common**;
6. **E-Gun #1 Select**: Pull this pin High to any voltage from +5v to +15v and hold to select.
7. **E-Gun #2 Select**: Pull this pin High to any voltage from +5v to +15v and hold to select. Previous selected E-Gun must return low or no connection before next choice can be made.
8. **Spare**;
9. **Common**;

**Model Line Table:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Max Power</th>
<th>Current</th>
<th>Std. Input VAC</th>
<th>Alt. Input VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVCEB-3</td>
<td>*3000 watts</td>
<td>500mA</td>
<td>208 2 phases or 220 VAC</td>
<td></td>
</tr>
<tr>
<td>HVCEB-6</td>
<td>6000 watts</td>
<td>600mA</td>
<td>208 3 phase</td>
<td>380 3 phase &amp; N</td>
</tr>
<tr>
<td>HVCEB-8</td>
<td>8000 watts</td>
<td>800mA</td>
<td>208 3 phase</td>
<td>380 3 phase &amp; N</td>
</tr>
<tr>
<td>HVCEB-10</td>
<td>10,000 watts</td>
<td>1,000mA</td>
<td>208 3 phase</td>
<td>380 3 phase &amp; N</td>
</tr>
</tbody>
</table>

*Note: 3kW are Air Cooled in 7 inch Rack

Line Regulation: +/- 0.02% of Full Voltage  
Load Regulation: +/- 0.05% of Full Voltage  
Low Stored Energy  
Operating Ambient Temperature: -15°C to 45°C  
Water Temperature: 40°C Max @ 1 Gallon / Min.  
Storage: -40°C to 85°C  
Stability: +/- 0.01% per hour  
Weight: 38 to 53 Lbs depending on Model  
Note: Specifications are subject to change without notice.