Series OL8000
8kW HIGH VOLTAGE POWER SUPPLY

FEATURES

- 8kW of output power
- Output voltages from 80kV to 200kV
- Positive or Negative polarity to order
- Robust IGBT converter design
- Low stored energy
- Exceptional reliability
- High stability
- Low ripple
- Arc and short circuit protected
- Marked for EU LV Directive 73/23/EEC

DESCRIPTION

The Series OL8000 is a range of high reliability, high voltage power supply systems designed to meet the rigorous requirements of ion and electron beam systems within a compact assembly. The design utilises IGBT technology operating at 20kHz to provide superior performance, coupled with an unrivalled resistance to damage from surges and arcs. The power converter uses a unique non-dissipative snubber which keeps the main power IGBTs cool, enhancing their long term reliability. The high voltage modules within the system are based on HiTek Power’s proprietary disc technology proven over many years and thousands of modules to achieve the ultimate performance and reliability in high voltage generators. Each system consists of two units: the converter, housed in a 4U (7”) 19” rack mounting unit and the HV unit, which is a separate high voltage multiplier assembly.

SPECIFICATION

Output Power:
8kW maximum at full rated output voltage and current.

Output Voltage:
Units available with maximum output voltages from 80kV to 200kV.

Output Current:
Up to 100mA for 80kV and 40mA for 200kV.

Input Voltage:
187VAC to 229VAC, 47-63Hz 3 phase and earth.

Polarity:
Positive or negative to order.

Line Regulation:
0.02% of rated output voltage for 10% change in mains voltage.

Load Regulation:
0.05% of rated output voltage for 1% to 100% change in load current where 100% is the rated current at rated output voltage.

Ripple:
Standard unit: 0.2% peak to peak of rated output voltage.
Filtered unit (F): 0.14% peak to peak of rated output voltage.

Transient Response:
The output will recover to within 1% of set value in less than 100ms from the removal of a short circuit.

Efficiency:
Greater than 80% at full load and rated output voltage.

Temperature Coefficient:
200ppm/°C max. Typically better than 100ppm/°C.

Operating Temperature:
0°C to +40°C.

Storage Temperature:
-20°C to +50°C.

Humidity:
85% maximum relative humidity. Non-condensing.

Altitude:
Sea level to 2000 metres (6500 feet).

www.hitekpower.com
Local Controls and Indicators:
AC supply 3 pole circuit breaker, AC ON indicator, HV ON/OFF switch, HV ON indicator, Local/Remote switch, Trip indicator, Voltage Control and Current Control indicators, 10-turn voltage control potentiometer, analogue output voltage meter, analogue output current meter.

The power supply is operated by remote control via the 25-way D-type connector situated on the rear panel of the converter. Full control and monitoring functions are available by this method.

Protection:
The units are fully protected against over-voltage, over-current, over-temperature, load arcing and output short circuit.

Safety:
All materials used meet or exceed the requirements of UL94 V-1 for flammability. Meets the requirements of the Low Voltage Directive, 73/23/EEC, by complying with BSEN60950 when installed as a component part of compliant equipment. Units are CE marked accordingly.

RoHS:
The OL8000 is currently built to non-RoHS standard. This unit can, however, be configured to meet the requirements of RoHS where significant customer demand requires it, although this will have an impact on delivery timescales.

Mechanical Specification:
Dimensions: See outline drawing
Weight: Converter unit 37kg
HV unit - See table below.
Mains: Via high current connector.
HV output: M5 bush provided on HV unit.
Connections: All connectors are mounted on the rear panel.

Interface Connections:
25-way D-type connector:

V STATUS INDICATOR
I STATUS INDICATOR
HV OUTPUT VOLTAGE MONITOR
TRIP INDICATOR
LOCAL INDICATOR
HV ON INDICATION
PROGRAM VOLTAGE MONITOR
HV ON - Lo
HV ON - Hi
PROGRAM VOLTAGE Hi
PROGRAM VOLTAGE Lo
OV
OV

HV OUTPUT CURRENT MONITOR
HV OFF INDICATOR
REMOTE INDICATOR
RESERVED
+10V REFERENCE VOLTAGE
RESERVED
RESERVED
ENABLE Lo
ENABLE Hi
CURRENT PROGRAM 0V
CURRENT PROGRAM
RESERVED

Outputs and Ordering Information:

<table>
<thead>
<tr>
<th>Model no</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>HV Unit Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>OL8000/803*</td>
<td>80kV</td>
<td>100mA</td>
<td>35kg 37kg</td>
</tr>
<tr>
<td>OL8000/104*</td>
<td>100kV</td>
<td>80mA</td>
<td>40kg 42kg</td>
</tr>
<tr>
<td>OL8000/124*</td>
<td>120kV</td>
<td>67mA</td>
<td>44kg -</td>
</tr>
<tr>
<td>OL8000/144*</td>
<td>140kV</td>
<td>57mA</td>
<td>49kg -</td>
</tr>
<tr>
<td>OL8000/164*</td>
<td>160kV</td>
<td>50mA</td>
<td>53kg -</td>
</tr>
<tr>
<td>OL8000/184*</td>
<td>180kV</td>
<td>45mA</td>
<td>58kg -</td>
</tr>
<tr>
<td>OL8000/204*</td>
<td>200kV</td>
<td>40mA</td>
<td>62kg -</td>
</tr>
</tbody>
</table>

* Please add the required suffix to the part number:
P Positive polarity
N Negative polarity
A Analogue meter
D Digital meters
B Blank front panel (remote control only)
S Surge limit resistor (optional)
F Filtered unit

Higher voltages than those in the table are available to special order, but at a reduced output power. Please contact our sales team for more information.

If required, this unit can be configured to meet the requirements of RoHS providing a significant quantity is ordered - please contact our sales team.
Series OL8000
8kW HIGH VOLTAGE POWER SUPPLY

M6 GROUND STUD
HV UNIT CONTROL
HF OUTPUT TO HV STACK
USER INTERFACE
MAINS INPUT

450 (17.72) MAX. OVER SLIDES
418 (16.46) OVER CHASSIS

M4 x 10 SCREWS EACH SIDE OF UNIT FOR SLIDE MOUNTINGS
4 POSITIONS.

Power On
HV On
HV Off
Trip

Power

Drawing dimensions are in mm (inches)
Design developments may result in specification changes

www.hitekpower.com
**Series OL8000**

8kW HIGH VOLTAGE POWER SUPPLY

**Filtered Unit - Option F:**

- **INPUT CONNECTOR**
- **144 (5.67)**
- **190 (7.48)**
- **270 (10.63)**
- **70 (2.75)**

- **FAN**

- **ONE 4mm BANANA SOCKET**
  - 6 HOLES
  - 8.8/9.0 DIA (0.34/0.35 DIA)

- **ONE 5mm RIVET BUSH**

- **HV O/PUT CONNS**
  - 15.0 (0.59) TYP.
  - 300 (11.81)

- **SHORTDOWN RESISTOR VERSION**

<table>
<thead>
<tr>
<th>OUTPUT kV</th>
<th>DIM 'A' NOMINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO SHORTDOWN</td>
<td>SHORTDOWN</td>
</tr>
<tr>
<td>60</td>
<td>223 (8.78)</td>
</tr>
<tr>
<td>80</td>
<td>273 (10.75)</td>
</tr>
<tr>
<td>100</td>
<td>323 (12.72)</td>
</tr>
<tr>
<td>120</td>
<td>373 (14.69)</td>
</tr>
<tr>
<td>140</td>
<td>423 (16.65)</td>
</tr>
<tr>
<td>160</td>
<td>473 (18.62)</td>
</tr>
<tr>
<td>180</td>
<td>523 (20.60)</td>
</tr>
<tr>
<td>200</td>
<td>573 (22.56)</td>
</tr>
</tbody>
</table>

**Drawing dimensions are in mm (inches)**

**Design modifications are current with design improvements**

www.hitekpower.com