

# HiTek Power Supply

## Specifications:

This specification is for an 80kV/60mA OL8000 power supply, consisting of a 19" rack mounted converter unit, and a 19" rack mounted air insulated HV unit. The unit has been optimised for fast recover after an arc condition, when used in conjunction with customers fast switch circuitry.

**Note:** This supply does not include any instantaneous arc current limiting resistance; it is the responsibility of the customer to provide sufficient resistance in series with the high voltage output. Failure to do so will damage the unit and possibly the end user equipment.

**INPUT VOLTAGE:** 208Vac  $\pm$ 10% (187Vac to 229Vac) 47-63Hz 3 phase plus protective earth.

**INPUT CURRENT:** Not exceeding 30A per phase

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**INPUT CURRENT:** Not exceeding 30A per phase

**OUTPUT VOLTAGE:** 4 to 80kV continuously variable. **Note:** The unit can be controlled below 4kV to near zero, however specification only applies between 4 and 80kV.

**POLARITY:** Positive.

**OUTPUT CURRENT:** 0 to 60mA. For a period not exceeding one second, a maximum peak current of 275mA may be drawn at reduced output voltage.

**CALIBRATION:** Calibration between Voltage Demand, Output Voltage and Voltage Monitor  $\pm$ 0.5% or 80V, referred to the output, whichever is greater.

**STORED ENERGY:** Less than 25J.

**LINE REGULATION:** Less than 0.05% deviation in output voltage for a 10% change in line voltage at 80kV, increasing to 0.3% at 4kV.

**LOAD REGULATION:** Less than 0.05% deviation in output voltage for 0 to 60mA change in load current at 80kV increasing to 0.3% at 4kV.

**RIPPLE:** Less than 120V peak to peak.

**TRANSIENT RESPONSE:** When used in conjunction with customers fast switch circuitry, recovery from an arc to within 1% of previous operating level is achieved in approximately 1-2mS.

**TEMPERATURE COEFFICIENT:** Less than 300ppm / Deg C. DRIFT Less than 0.05%/ eight hours after three hour warm up time, excluding temperature, load and line change.

**PROTECTION:** Over-temperature Output over-voltage Over current trip Phase failure

**HV ON:** Connecting together the 'HV ON' high and low commands with a pulse >0.1 seconds, switches on the HV output.

**HV OFF:** Connecting together the 'HV OFF' high and low commands with a pulse >0.1 seconds, switches off the HV output.

**OVERLOAD RESET:** Connecting together the 'OVERLOAD RESET' high and low commands with a pulse >0.1 seconds, resets the supply after an overload fault has occurred.

**HV ON LAMP:** An uncommitted transistor (output transistor of opto-isolator) is provided for indication of HV ON status. The transistor is switched on when HV is on. (Collector of transistor is connected to HV ON LAMP HI, emitter is connected to HV ON LAMP LO).

**HV OFF LAMP:** An uncommitted transistor (output transistor of opto-isolator) is provided for indication of HV OFF status. The transistor is switched on when HV is off. (Collector of transistor is connected to HV OFF LAMP HI, emitter is connected to HV OFF LAMP LO).

**OVERLOAD LAMP:** An uncommitted transistor (output transistor of opto-isolator) is provided for indication of OVERLOAD status. The transistor is switched on when the supply has shut down due to an overload. (Collector of transistor is connected to OVERLOAD LAMP HI, emitter is connected to OVERLOAD LAMP LO). ENABLE 1 AND 2 Connecting enables 1 and 2 to the enable return enables the HV ON control. Disconnecting either will Trip the unit.

**PROGRAMMING VOLTAGE:** A positive voltage on 'PROGRAMMING VOLTAGE HIGH' with respect to 'PROGRAMMING VOLTAGE LOW' will increase or decrease the output voltage between 0 and FSD, where 0 to 10V input equals 0 to 80kV output  $\pm 0.5\%$  or  $\pm 80V$  (whichever is greater).

**OUTPUT VOLTAGE MONITOR:** A voltage signal proportional to HV output voltage. This is scaled such that 0 to 10V represents 0 to 80kV  $\pm 0.5\%$  or  $\pm 80V$  (whichever is greater).

**OUTPUT CURRENT MONITOR:** A voltage signal proportional to output current. This is scaled such that 0 to 60mA output is represented by 0 to 6V  $\pm 2\%$  or  $\pm 50mV$  (whichever is greater).

**12V RAIL A:** +12V Rail is available to the user, maximum current 200Ma

**NOTE:** The momentary action controls, 'HV ON', 'HV OFF' and OVERLOAD RESET' must NOT be held in the ON state

## **FRONT PANEL CONTROLS AND INDICATORS**

**CIRCUIT BREAKER:** This disconnects 3 phase power from the supply in the event of an internal overload. It may also be used as power ON/OFF control. Power is connected with the breaker in the 'UP' position.

**'AC ON' LAMP:** White lamp illuminates when AC power is connected and circuit breaker is in the 'ON' position.

**'HV ON' LAMP:** Green lamp illuminates when 'HV ON' is enabled.

**'HV OFF' LAMP:** Orange lamp illuminates when 'HV ON' is disabled.

**'FAULT' LAMP:** Red lamp illuminates when the supply has shut down due to internal fault detection or continuous output overload.

**HV ON:** Monitor A voltage > 10V with respect to 'DIGITAL 0V' is present when 'HV ON' is enabled.

**HV OFF:** Monitor A voltage > 10V with respect to 'DIGITAL 0V' is present when 'HV ON' is disabled.

**OVERLOAD:** Monitor A voltage > 10V with respect to 'DIGITAL 0V' is present when the supply has shut down due to an overload condition.

**VPROG:** Monitor A voltage signal equivalent to HV programming voltage, measured with respect to 'ANALOGUE 0V'. This is scaled such that 10V demand is represented by  $10V \pm 1\%$ .

**VMON:** Monitor A voltage signal proportional to HV output voltage, measured with respect to 'ANALOGUE 0V'. This is scaled such that 80kV output is represented by  $10V \pm 1\%$ .

**IMON:** Monitor A voltage signal proportional to output current, measured with respect to 'ANALOGUE 0V'. This is scaled such that 60mA output is represented by  $6V \pm 2\%$ .

**REMOTE / LOCAL SWITCH:** This switches the voltage and programming between local (i.e. Front Panel) and remote (i.e. via the Rear Panel connector).

**kV DEMAND POTENTIOMETER:** This ten turn potentiometer increases or decreases the output between 0 and 80kV.

## **ENVIRONMENTAL**

- **OPERATING TEMPERATURE:** 0°C to +40°C. Ambient and air intake.
- **STORAGE TEMPERATURE:** -20°C to +85°C.
- **HUMIDITY:** Up to 95% relative humidity non-condensing.
- **ALTITUDE:** Sea level to 2000m.
- **INSTALLATION CATEGORY II:** (BSEN 61010)
- **POLLUTION DEGREE 2:** (BSEN 61010)

**INDOOR USE ONLY**