



FEATURES

- 1kW of output power
- Output voltages from 1kV to 60kV
- Positive or Negative polarity to order
- Analogue meter or blank front panel options
- IGBT switch mode technology
- Local or remote operation
- CE Marked for EU LV Directive 73/23/EEC

DESCRIPTION

The Series 0L1K range of single output high voltage power supplies meets the exacting requirements found in electron and ion beam systems, ion implantation and X-ray equipment. Designed using the latest power switching IGBTs to ensure efficient and reliable operation over the full operating range, the Series 0L1K will give excellent performance in the most severe of electrical environments.

SPECIFICATION

Output Power:

1kW maximum at full rated output voltage and current.

Output Voltage:

Units available with maximum output voltages from 1kV to 60kV.

Output Current:

Up to 1A for 1kV and 16mA for 60kV, see table.

Input Voltage:

187VAC to 255VAC 47-63Hz single phase plus protective earth.

Input Current:

Less than 12A.

Polarity:

Positive or negative to order.

Specification Range:

Specifications apply above 5% of rated output voltage. The output can be controlled down to less than 0.25% of rated output voltage.

Voltage Ripple:

Voltage Mode: Less than 0.1% of rated output voltage +2V, peak to peak.

Current Mode: Less than 0.5% of rated output voltage peak to peak.

Voltage Regulation:

Line: Less than 0.05% +1V change in output voltage for a 10% change in line voltage.

Load: Less than 0.05% +1V change in output voltage for a 0 to 100% change in load current.

Current Regulation:

Line: Less than 0.5% of rated output current for a 10% change in line voltage.

Load: Less than 0.5% change of rated output current for a 0 to 100% change in output voltage.

Recovery Time:

Less than 500ms to within 0.1% of previous operating level following a short circuit or arc. Maximum overshoot 2% of rated output voltage.

Temperature Coefficient:

Less than 200ppm/°C.

Drift:

Less than 0.02% per hour after 1 hour warm up.

Operating Temperature:

0°C to +40°C.

Storage Temperature:

-20°C to +70°C.

Series OL1K

HIGH VOLTAGE POWER SUPPLY



Humidity:

80% maximum relative humidity up to 31°C, reducing linearly to 50% at 40°C. Non-condensing (ref BS EN61010-1).

Altitude:

Sea level up to 2000 metres (6500 feet).

Installation Category:

II (BS EN61010-1).

Pollution Degree:

2 (BS EN61010-1).

Usage:

Indoor use only.

Protection:

The units are fully protected against over-temperature and over-current, peak arc current is resistively limited.

Arc Count and Extinguish:

Each time the ACE system detects an arc it blanks the supply off for a brief period to extinguish the arc. The unit is then allowed to recover. If more arcs occur they are counted to determine the arc rate; if this exceeds a safe level the power supply is shut down. The parameters are factory set to 25 arcs in any 5 second period.

Cooling:

Fan assisted, air is drawn in via side panel vents and exits at the rear of the unit. Minimum airflow required is 3m/s. Ambient air around the unit must not exceed 40°C.

Safety:

The Series OL1K meets the requirements of the Low Voltage Directive, 2006/95/EC, by complying with BS EN61010-1:2001 when installed as a component part of compliant equipment. It is CE marked accordingly.

Safety Class:

Equipment Class 1.

EMC:

The Series OL1K is intended for installation as a component of a system and is designed to meet:

EN55022 Class B for conducted and radiated emissions
EN61000-4-2 ESD - levels ± 4 kV contact, ± 8 kV air discharge
EN61000-4-4 Fast transients on mains input - levels ± 2 kV
EN61000-4-5 surges - levels ± 2 kV line to earth, ± 1 kV line to line
EN61000-4-8 magnetic fields - levels 30A/m at 50/60Hz
EN61000-4-11 voltage dips, interruptions

The unit will not trip and recovers to normal operation after a disturbance as defined in SEMI F47-0706.

The EMC performance of the power supply can only be fully assessed when installed within, and as a part of, the final system.

RoHS:

The OL1K 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 please note that this will have an impact on delivery timescales.

Mechanical Specification:

Dimensions: See outline drawing
Weight: 14kg
Connections: All connections are mounted on the rear panel.
Mains: IEC320
Safety earth: M6 stud
HV output: Proprietary coaxial connector, 2m cable provided.
Front panel: Stoving enamel trimate full gloss S60/6 colour cream R87177 as standard.

Outputs and Ordering Information:

Model no	Output Voltage	Output Current
OL1K/102*	1kV	1A
OL1K/202*	2kV	500mA
OL1K/502*	5kV	200mA
OL1K/103*	10kV	100mA
OL1K/203*	20kV	50mA
OL1K/303*	30kV	33mA
OL1K/403*	40kV	25mA
OL1K/503*	50kV	20mA
OL1K/603* **	60kV	16mA

* Please add the required suffixes to the part number:

P Positive polarity
N Negative polarity
A Analogue meters
B Blank front panel

eg order part number OL1K/102PA for a 1kV positive polarity unit with analogue meters.

** 60kV unit has an encapsulated HV assembly.

For voltages not listed in the output table, please contact our sales team.

Remote Control Interface Connections:

The Series 0L1K is fitted with an analogue remote control interface, controlled via a 25-way female D-type connector:

V STATUS INDICATOR	1	14	HV OUTPUT CURRENT MONITOR
I STATUS INDICATOR	2	15	HV OFF INDICATOR
HV OUTPUT VOLTAGE MONITOR	3	16	REMOTE INDICATOR
TRIP INDICATOR	4	17	RESERVED
LOCAL INDICATOR	5	18	+10V REFERENCE VOLTAGE
HV ON INDICATION	6	19	RESERVED
PROGRAM VOLTAGE MONITOR	7	20	RESERVED
HV ON Lo	8	21	ENABLE Lo
HV ON Hi	9	22	ENABLE Hi
PROGRAM VOLTAGE Hi	10	23	CURRENT PROGRAM 0V
PROGRAM VOLTAGE Lo	11	24	CURRENT PROGRAM
0V	12	25	RESERVED
0V	13		

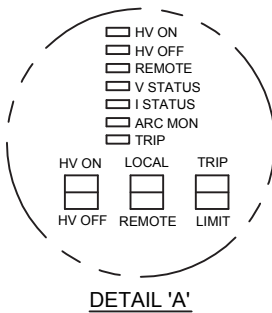
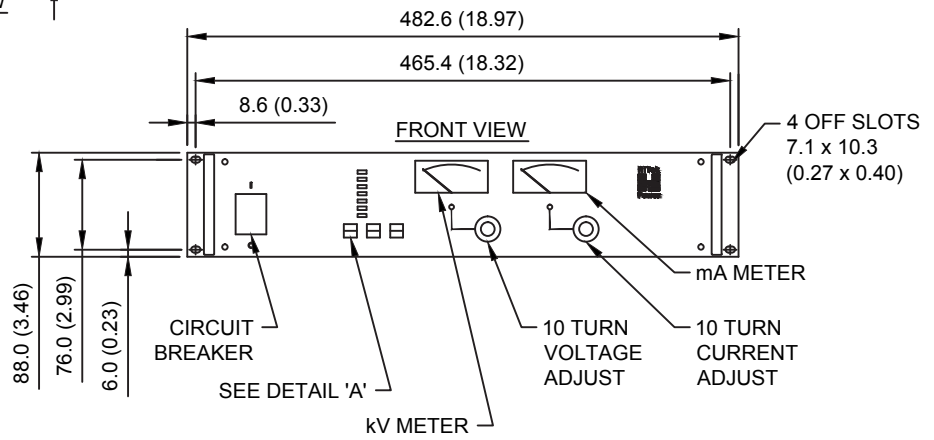
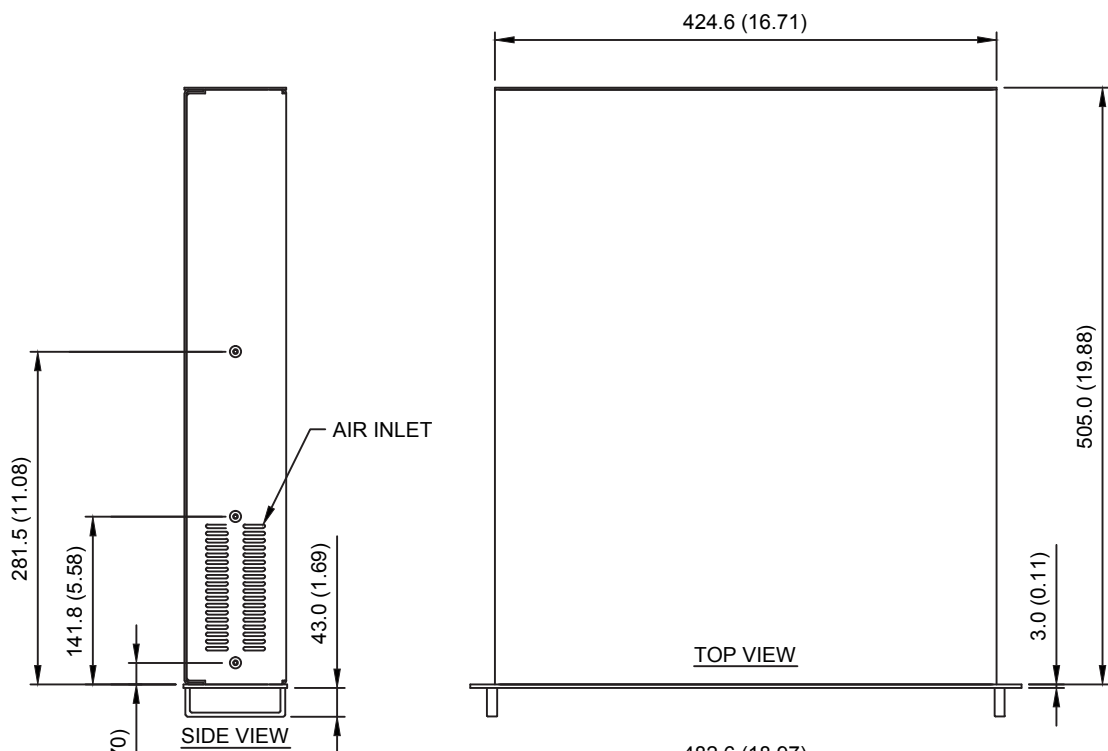
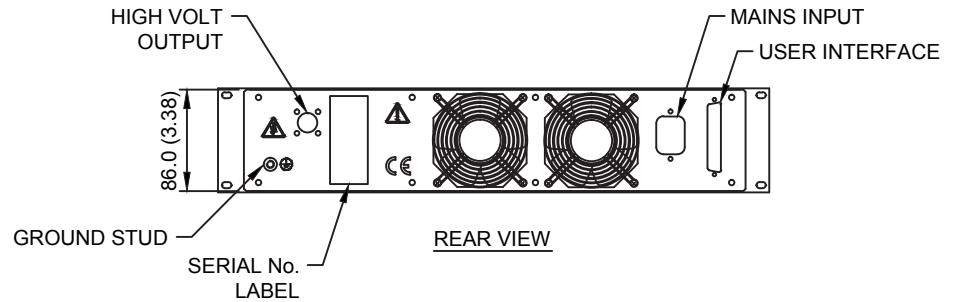
All logical indicators are open collector outputs rated at 16V (max) in the off state. An internal 100 Ω resistor is connected in series with the open collector transistor. The pull down voltage is 0.9V plus the internal resistor drop.

All analogue Voltage and Current Monitors are 0V to +10V $\pm 0.5\%$ $\pm 20\text{mV}$, with respect to pin 13, representing 0 to rated output. Signal impedance is less than 100 Ω and minimum external load resistance is 2k Ω .

All analogue Voltage and Current Inputs are 0V to +10V on the Hi input with respect to the Lo input, representing 0V to rated output $\pm 0.2\%$ of setting $\pm 0.1\%$ of rating. Input impedance is greater than 50k Ω .

Series OL1K

HIGH VOLTAGE POWER SUPPLY



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

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