



## FEATURES

- **3kW of output power**
- **Output voltages from 1kV to 60kV**
- **Positive or Negative polarity to order**
- **OEM version available**
- **IGBT switch mode technology**
- **Local or remote operation**
- **CE Marked for EU LV Directive 73/23/EEC**

## DESCRIPTION

The Series OL3000 range of single output high voltage power supplies was designed as a component power supply for use in a wide range of diverse applications; from X-ray and general laboratory systems, to heavy industrial use as typified by electron beam welding and ion implantation. Designed using the latest power switching IGBTs to ensure efficient and reliable operation over the full operating range, the Series OL3000 will give excellent performance in the most severe of electrical environments.

## SPECIFICATION

### Output Power:

3kW maximum at full rated output voltage and current.

### Output Voltage:

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

### Output Current:

Up to 3A for 1kV and 50mA for 60kV, see table.

### Input Voltage:

208VAC  $\pm 10\%$  (187VAC to 229VAC) 47-63Hz 3 phase plus protective earth.

### Input Current:

Less than 14A per phase.

### 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.

### Ripple:

Less than 0.1% of rated voltage +2V, peak to peak.

### Voltage Regulation:

Line: Less than 0.1% +0.5V change in output voltage for a 10% change in line voltage.

Load: Less than 0.1% +0.5V change in output voltage for 0 to 100% change in load current.

### Current Regulation:

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

Load: Less than 0.5% of rated current for 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 100ppm/ $^{\circ}\text{C}$ .

### Drift:

Less than 0.05% per hour after a 1 hour warm up, at constant load, line and temperature.

### Operating Temperature:

0 $^{\circ}\text{C}$  to +40 $^{\circ}\text{C}$ .

# Series OL3000

## 3kW HIGH VOLTAGE POWER SUPPLY



### Storage Temperature:

-20°C to +70°C.

### 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 and rear 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 OL3000 meets the requirements of the Low Voltage Directive, 73/23/EEC, 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 OL3000 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  $\pm 4$ kV contact,  $\pm 8$ kV air discharge  
EN61000-4-4 Fast transients on mains input - levels  $\pm 2$ kV  
EN61000-4-5 surges - levels  $\pm 2$ kV line to earth,  $\pm 1$ 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 OL3000 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 and table below.  
Weight: Units up to and including 40kV: 27kg (60 lb)  
Units over 40kV: 37kg (82 lb).  
Connections: All connections are mounted on the rear panel.  
Mains: Harting Han GB  
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	Unit Height mm (in)
OL3000/102*	1kV	3A	133 (5.25)
OL3000/202*	2kV	1.5A	133 (5.25)
OL3000/502*	5kV	600mA	133 (5.25)
OL3000/103*	10kV	300mA	133 (5.25)
OL3000/203*	20kV	150mA	133 (5.25)
OL3000/303*	30kV	100mA	133 (5.25)
OL3000/403*	40kV	75mA	133 (5.25)
OL3000/503*	50kV	60mA	177 (7.0)
OL3000/603*	60kV	50mA	177 (7.0)

\* Please add the required suffixes to the part number:

P Positive polarity or  
N Negative polarity  
A Analogue meters or  
D Digital meters or  
B Blank front panel  
E Encapsulated HV section

eg order part number OL3000/503PBE for a 50kV output voltage positive polarity unit with blank front panel and an encapsulated HV section.

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

**Remote Control Interface Connections:**

The Series OL3000 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		

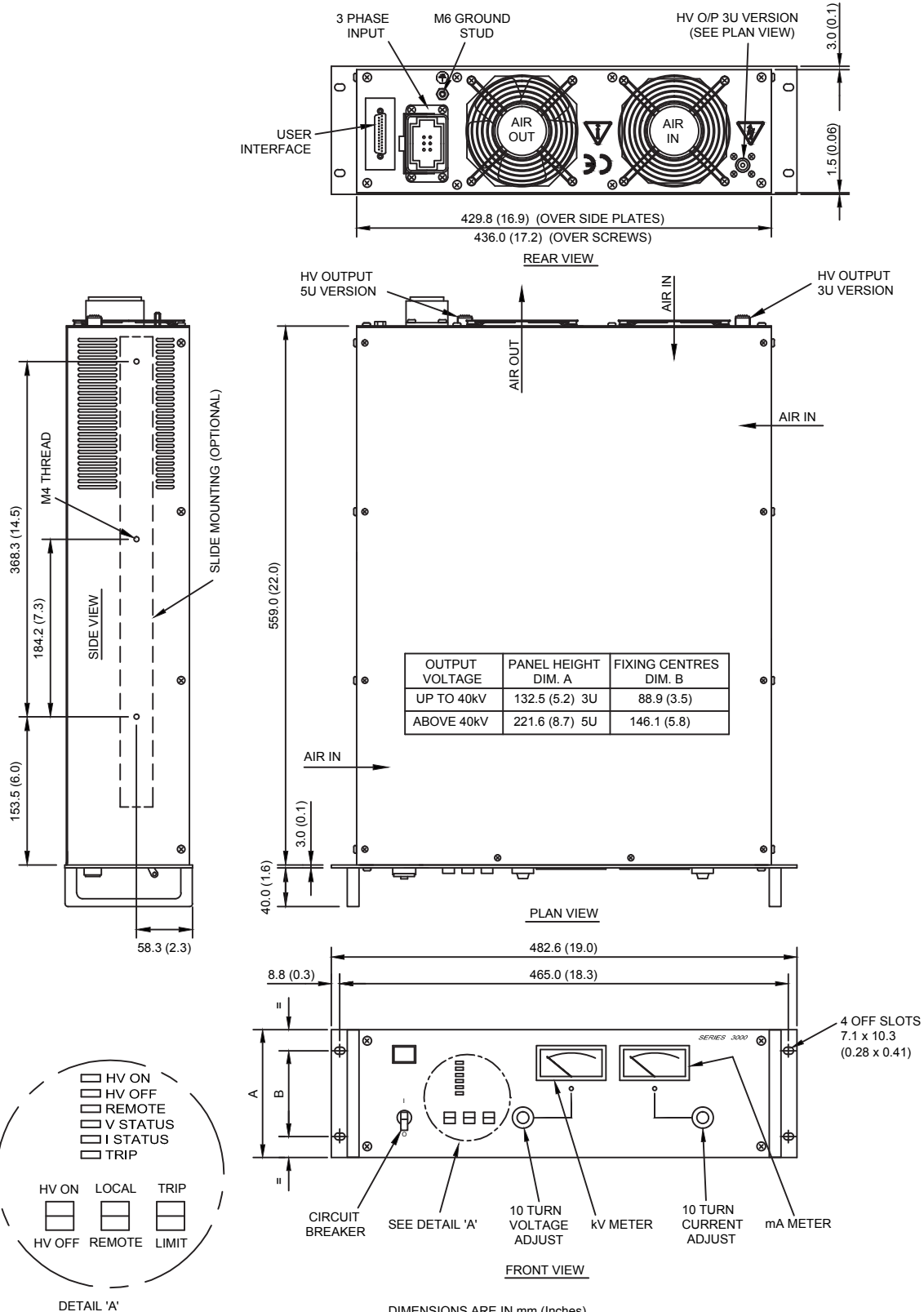
All logical indicators are open collector outputs rated at 16V (max) in the off state. An internal 100Ω resistor is connected in series with the open collector transistor. The pull down voltage is 0.9V plus the internal resistor drop.

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

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 ±0.2% of setting ±0.1% of rating. Input impedance is greater than 50kΩ.

# Series OL3000

## 3kW HIGH VOLTAGE POWER SUPPLY



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

DIMENSIONS ARE IN mm (Inches)  
DRAWING SHOWS 3U VERSION.

# HiTek



# Power

*The Power Supply  
Pioneer*

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