HiTek Power

Series OL10K
10kW HIGH VOLTAGE POWER SUPPLY

FEATURES

- 10kW of output power
- Output voltages from 60kV to over 200kV
- Positive or Negative polarity to order
- Robust IGBT converter design
- Exceptional reliability
- High Stability
- Excellent inherent ruggedness
- Arc Count and Extinguish (ACE)
- CE Marked

DESCRIPTION

The Series OL10K is a range of high reliability products designed to meet the rigorous requirements of ion and electron beam systems. These high performance switch mode systems are based on a power converter using zero-volt switching. A full bridge of the latest generation of Insulated Gate Bipolar Transistors (IGBTs) in a fully regulated closed-loop system capable of continuously supplying up to 10kW of output power whilst maintaining flexible control down to a few hundred Watts. These highly reliable rugged systems comprise two units, a rack mounting power converter through which remote controls are facilitated, and a separate HV unit employing a modular disc construction. Numerous features are incorporated to ensure system integrity is maintained during adverse operating conditions. Such features include continuous primary current monitoring with fast pulse truncation and soft recovery, extensive thermal monitoring and automatic shutdown on key components, passive output current limiting for instantaneous surge control and independent output overvoltage sensing. Optionally HiTek Power's Arc Count and Extinguish (ACE) system can be installed for active arc management.

SPECIFICATION

Output Power:
10kW maximum at full rated output voltage and current.

Output Voltage:
Units available with maximum output voltages from 60kV to 200kV.

Output Current:
Up to 166mA for 60kV and 40mA for 200kV.

Input Voltage:
208VAC ±10% (187VAC to 229VAC) 47-63Hz 3 phase and earth.

Input Current:
Less than 40A per phase.

Polarity:
Positive or negative to order.

Minimum Voltage:
5% of rated output voltage. The unit may be turned down below this but the specifications are not guaranteed below this level.

Line Regulation:
Less than 0.1% change in output voltage for a 10% change in mains voltage.

Load Regulation:
Less than 0.1% of rated output voltage for a full load change.

Ripple:
Less than 0.1% peak to peak of rated output voltage.

Transient Response:
The output will recover to within ±0.5% of set value in less than 200ms from the removal of a short circuit.

Temperature Coefficient:
200ppm/°C (0.02%/°C).

Drift:
Less than 0.5%/8 hours after 1 hour warm up.

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Protection:
Over temperature, output over-voltage, constant current or timed trip mode.

Front Panel Controls and Indicators:
- Circuit Breaker HV On indicator
- HV Off indicator
- Trip indicator

Operating Temperature:
0°C to +40°C ambient and air intake.

Storage Temperature:
-20°C to +85°C.

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

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

Installation Category:
II (BS EN61010-1)

Pollution Degree:
2 (BS EN61010-1)

Usage:
Indoor use only.

Control:
The power supply is operated by remote control via the 25-way D-type connector situation on the rear panel of the converter. Full control and monitoring functions are available by this method. Application of 0 to 10V to the voltage and current control lines programmes the unit for 0 to 100% of rated output. Similarly 0 to 10V signals provide monitors of the output voltage and current levels. HV ON/OFF is obtained by shorting two teminals and status lines are provided by open collector outputs.

Protection:
The units are fully protected against over voltage, over current, over temperature, load arcing and output short circuits. The ACE system can be installed to give added arc management functionality.

RoHS:
The 0L10K 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.

Safety:
The OL10K high voltage power supplies meet the requirements of the Low Voltage Directive, LVD, 73/23/EEC by complying with BS EN61010-1:2001 when installed as a component part of other equipment. They are CE marked accordingly.

Mechanical Specification:
Dimensions: See outline drawings.

Weight: Converter 27kg
Stack - see table
Connections: All connections are mounted on the rear panel.
HV Output: M5 bush mounted on HV unit.
Mains: Harting Han C (mating part provided).

Outputs and Ordering Information:

Model no	Output Voltage	Output Current	HV Stack Weight
OL10K/603*	60kV	166mA	35kg
OL10K/803*	80kV	120mA	39kg
OL10K/104*	100kV	100mA	44kg
OL10K/124*	120kV	80mA	49kg
OL10K/144*	140kV	65mA	53kg
OL10K/164*	160kV	55mA	57kg
OL10K/184*	180kV	45mA	62kg
OL10K/204*	200kV	40mA	66kg

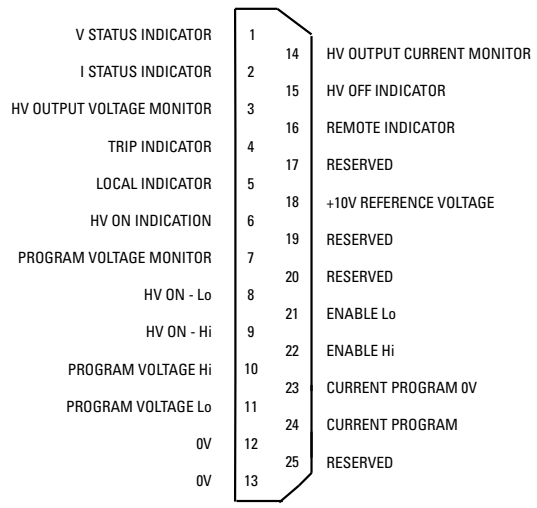
* Please add the required suffix to the part number:

P	Positive polarity
N	Negative polarity
A	Analogue meter
D	Digital meters
B	Blank front panel (remote control only)
S	Surge limit resistor (optional)

eg order part number OL10K/803/PA for an 80kV positive polarity unit with analogue meter.

Higher voltages are available to special order but at a reduced output power. Please contact our sales department for further details.

Interface Connections:
25-way D-type connector:



CE These component power supplies meet the requirements of EC Directive 73/23/EEC (LVD).

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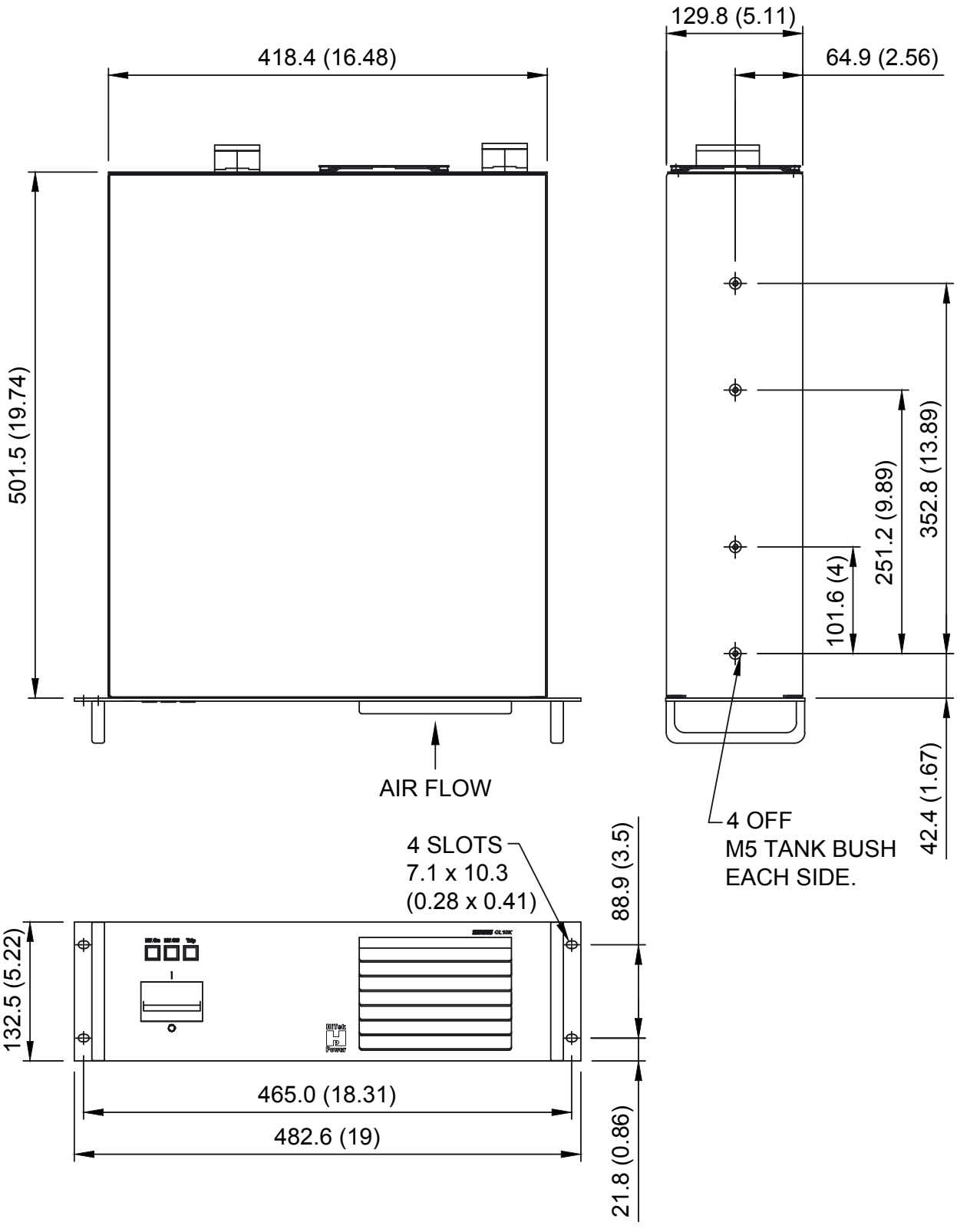

Drawing dimensions are in mm (inches)
Design developments may result in specification changes

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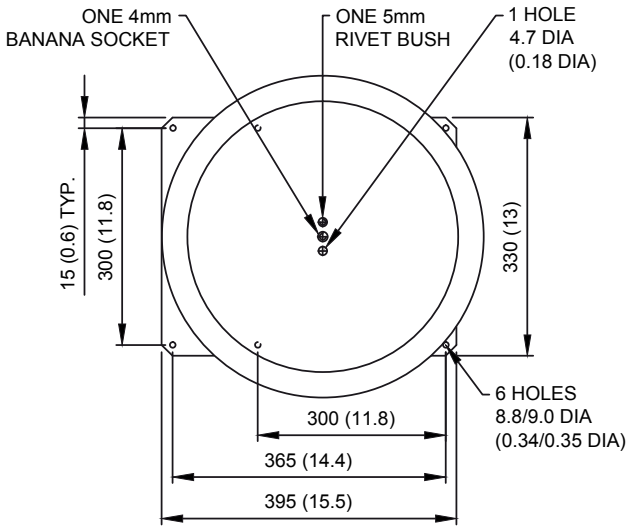
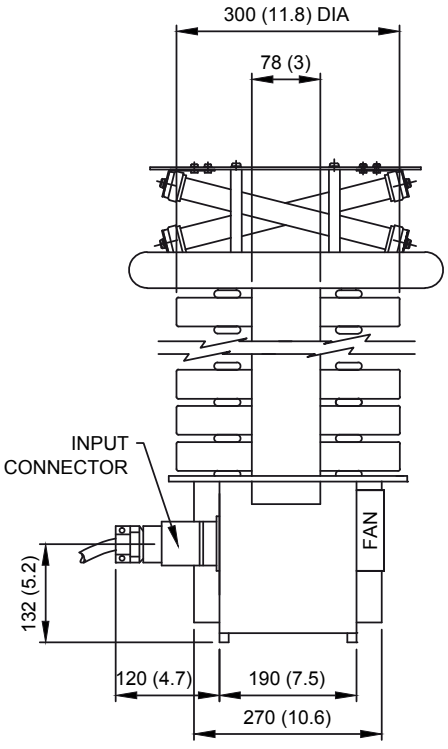
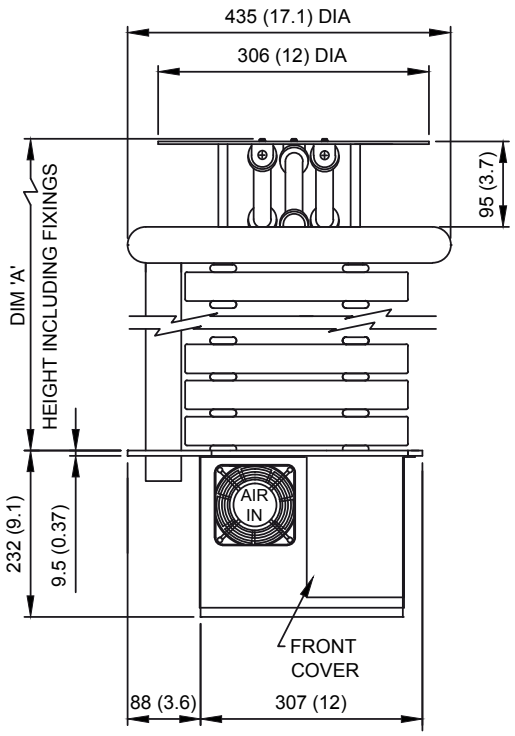
OUTPUT kV	DIM 'A' NOMINAL
60	313.0/303.0 (12.3/11.9)
80	365.0/353.0 (14.4/13.9)
100	417.0/403.0 (16.4/15.9)
120	470.0/453.0 (18.5/17.8)
140	522.0/503.0 (20.6/19.8)
160	574.0/553.0 (22.6/21.8)
180	626.0/603.0 (24.6/23.7)
200	678.0/653.0 (26.7/25.7)







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