

HITEK POWER OL600W SERIES

600 W HIGH VOLTAGE POWER SUPPLIES



The HiTek Power® OL600W series range of single output high voltage power supplies meets the exacting requirements found in electron beam, ion beam, and x-ray systems, as well as ion and chemical vapor deposition, electrostatic precipitation, and other 24/7 production processes.

PRODUCT HIGHLIGHTS

- Output voltages from 1 to 60 kV available with customer-defined derivatives upon request
- High packing density: 600 W in 1U
- High stability
- Exceptional reliability
- Arc count and extinguish (ACE)
- Full local and remote control monitoring
- Voltage or current control
- Complies with SEMI F47 standard
- CE and UKCA marked
- RoHS compliant
- Custom options available

TYPICAL APPLICATIONS

- Electron beam
- Ion beam
- X-ray
- Lasers
- HV pulse generator bias
- HV amplifier bias
- Electrostatic precipitation
- Chemical purification

ELECTRICAL SPECIFICATIONS

| Specifications | |
|--------------------------------|---|
| Output Power | 600 W max at full rated output voltage and current |
| Output Voltage | Units available with max output from 1 to 60 kV |
| Output Current | Up to 600 mA for 1 kV and 7.5 mA for 60 kV |
| Input Voltage | 185 to 255 VAC or 103 to 127 VAC (auto range selection). Range does not change after power up. 47 to 63 Hz single phase and earth |
| Input Current | Not exceeding 6 Arms (185 to 255 VAC) Not exceeding 12 Arms (103 to 127 VAC) |
| Polarity | Positive or negative to order |
| Specification Range | Specifications apply above 5% of rated output voltage |
| Voltage Ripple | |
| Voltage Mode | < 0.1% of rated output voltage +2 Vpk to pk |
| | < 0.02% of rated output voltage +0.5 Vrms |
| Current Mode | < 0.5% of rated output voltage +2 Vpk to pk |
| | < 0.1% of rated output voltage +0.5 Vrms |
| Voltage Regulation | |
| Line | < 0.05% ±0.5 V change in output voltage for a 10% change in line voltage |
| Load | < 0.05% ±0.5 V change in output voltage for 0 to 100% change in load current |
| Current Regulation | |
| Line | < 0.5% of rated output current for a 10% change in line voltage |
| Load | < 0.5% of rated output current for 0 to 100% change in output voltage |
| Recovery Time | < 500 ms to within 0.1% of previous operating level following a short circuit or arc. |
| | Max overshoot 2% of rated output voltage. |
| Temperature Coefficient | < 100 ppm/°C |
| Drift | < 0.1% in 8 h after 3 h warmup at constant load, line, and temperature |
| Efficiency | > 75% |
| Protection | Over temperature |
| | Over voltage |
| | Fan failure |
| | Current limit |
| | Series output resistance |
| Arc Count and Extinguish (ACE) | 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. |

ELECTRICAL SPECIFICATIONS (CONTINUED)

| Environmental | |
|-----------------------|--|
| Operating Temperature | 0 to 40°C (32 to 140°F) |
| Storage Temperature | -20 to 70°C (-4 to 158°F) |
| Humidity | 80% max relative humidity up to 31°C (37°F) reducing linearly to 50% at 40°C (104°F). Non-condensing. |
| Altitude | Sea level to 2000 m (6500') |
| Safety | Meets the requirements of the Low Voltage Directive, 2014/35/EU, SI 2016 No. 1101 by complying with BS EN61010-1:2010 when installed as a component part of compliant equipment. Units are CE and UKCA marked accordingly. |
| Safety Class | Equipment Class 1 |
| Usage | Indoor use only |
| Installation Category | II (BS EN61010) |
| Pollution Degree | 2 (BS EN61010) |

| Physical Specifications | |
|---|---|
| Portability | Non-portable |
| EMC | Intended for installation as a component of a system and designed to meet: |
| | BS EN55022 class B for conducted and radiated emissions |
| | BS EN61000-4-2 ESD – levels ±4 kV contact, ±8 kV air discharge |
| | BS EN61000-4-4 Fast transients on mains input – levels ±2 kV |
| | BS EN61000-4-5 Surges – levels ±2 kV line to earth, ±1 kV line to line |
| | BS EN61000-4-8 Magnetic fields – levels 30 A/m at 50/60 Hz |
| | BS EN61000-4-11 Voltage dips, interruptions |
| | The unit will not trip and recovers to normal operation after a disturbance as defined in SEMI F47. |
| The EMC performance of the power supply can only be fully assessed when installed within and as part of the final system. | |
| RoHS | Meets the requirements of EU directive 2011/65/EU, delegated directive 2015/863 and SI 2012 No. 3032 on the restriction of use of certain Hazardous Substances in Electrical and Electronic equipment (RoHS). |
| Metering | Provided as part of an alphanumeric display. Voltages are displayed with a resolution > 0.5% of rated output. Current is displayed with a resolution of > 1.5% of rated output. Voltage and current set values can be displayed by pressing the relevant control potentiometer. |
| Status Indication | Uses the alphanumeric display to show the reason for any trip condition. |
| Cooling | Fan assisted with fan fail detection. Air inlets at the rear of the unit, exhaust on the side panels and top cover. Min air flow required is 3 m/s at the input to the fan. |
| | For slide mounting, a 15 mm gap shall be provided above the unit for air exhaust if the side air vents are blocked. |
| | For shelf mounting the 1 U, no gap is required above or below the unit provided the side air vents are clear by at least 15 mm. The 2 U requires a 15mm gap above the unit as well. |

INTERFACE

Remote control 25-way female D-type connector:

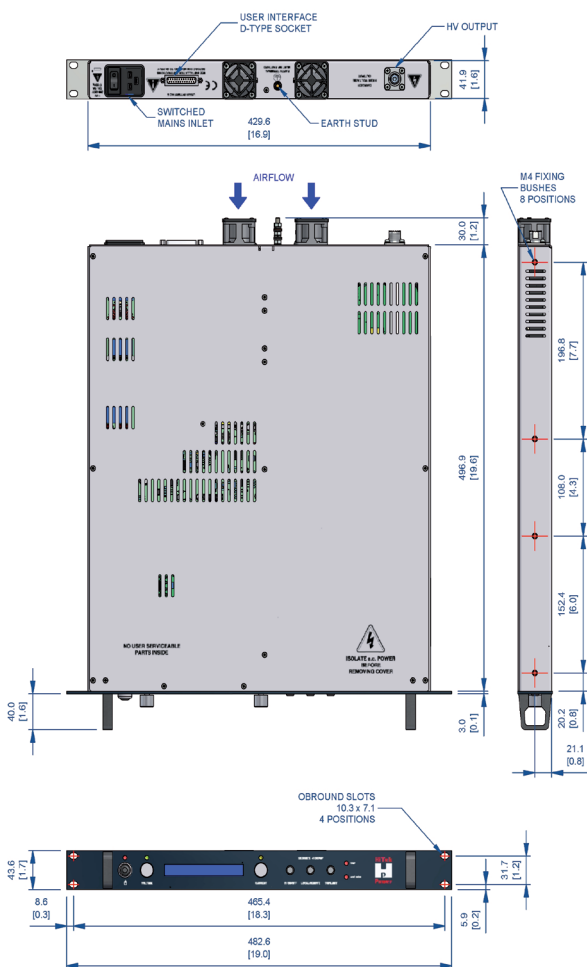
| | | |
|---------------------------|----|---------------------------|
| V STATUS INDICATOR | 1 | |
| I STATUS INDICATOR | 2 | |
| HV OUTPUT VOLTAGE MONITOR | 3 | |
| TRIP INDICATOR | 4 | |
| LOCAL INDICATOR | 5 | |
| HV ON INDICATION | 6 | |
| PROGRAM VOLTAGE MONITOR | 7 | |
| HV ON - LO | 8 | |
| HV ON - HI | 9 | |
| PROGRAM VOLTAGE HI | 10 | |
| PROGRAM VOLTAGE LO | 11 | |
| 0 V | 12 | |
| MONITOR 0 V | 13 | |
| | 14 | HV OUTPUT CURRENT MONITOR |
| | 15 | HV OFF INDICATOR |
| | 16 | REMOTE INDICATOR |
| | 17 | ARC INDICATOR |
| | 18 | +10 V REFERENCE VOLTAGE |
| | 19 | NO CONNECTION |
| | 20 | NO CONNECTION |
| | 21 | ENABLE LO |
| | 22 | ENABLE HI |
| | 23 | CURRENT PROGRAM 0 V |
| | 24 | CURRENT PROGRAM |
| | 25 | CURRENT PROGRAM MONITOR |

All logical indicators are open collector outputs rated at 16 V (max) in the off state. An internal 100 Ω resistor is connected in series with the open collector transistor. The pull down voltage is 0.9 V plus the internal resistor drop. The rated current is 10 mA.

All analog voltage and current monitors are 0 to +10 V ±0.5% ±20 mV, with respect to pin 13, representing 0 to rated output. Signal impedance < 100 Ω and minimum external load resistance is 2 kΩ.

All analog voltage and current inputs are 0 to +10 V on the HI input with respect to the LO input representing 0 V to rated output ±0.2% of setting ±0.1% of rating. Input impedance > 50 kΩ.

MECHANICAL SPECIFICATIONS



Note: Drawing dimensions are in mm (")

| Construction | |
|--------------|--|
| Weight | 6.5 kg for units up to 60 kV |
| Connections | All Connections are mounted on the rear panel |
| Mains | IEC320-C20 16 A with integrated two pole switch |
| Safety Earth | M5 stud |
| HV Output | Proprietary coaxial connector |
| Front Panel | Stoving enamel trimite full gloss S60/9 color blue |
| | RAL5011 as standard |

HITEK POWER OL600W SERIES

ORDER INFORMATION

For ordering information and to find a solution for your exact requirements, please contact your local Advanced Energy sales representative.



For international contact information,
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ABOUT ADVANCED ENERGY

Since 1981, Advanced Energy (AE) has perfected how power performs for its customers. For both end users and OEMs, AE's comprehensive portfolio of standard and custom high voltage components precisely match system specifications to deliver unparalleled energy, quality, and performance. Through close customer collaboration, design expertise, application insight, and world-class support, AE creates successful partnerships and enables customers to push the boundaries of innovation and stay ahead of evolving market needs.

PRECISION | POWER | PERFORMANCE | TRUST



CAUTION:
High Voltage

Read and understand all documentation before you install, operate, or maintain Advanced Energy high voltage power supplies. Follow all safety instructions and precautions to protect against property damage and serious or possibly fatal bodily injury. Never defeat safety interlocks or grounds.

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