Advanced Energy®

HITEK POWER® OL600W SERIES

600 W HIGH VOLTAGE POWER SUPPLIES

AC-to-HVDC single-output rack-mount high voltage power supplies

The 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.

Features

- Output voltages from 1 to 80 kV
- High packing density: 600 W in 1 U (80 kV 2 U)
- 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 marked for EU LV directive 2006/95/EC
- RoHS compliant to EU directive 2011/65/EU
- Custom options available

Typical Applications

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

Designed using the latest power switching IGBTs to ensure efficient and reliable operation over the full operating range, the OL600W series gives excellent performance in the most severe electrical environments. The OL600W utilizes air as the primary insulation medium for voltages up to 80 kV; achieving a high packing density for high voltage supplies giving 65 W per liter, 1 W per inch^3. The 1 U construction (2 U for 80 kV units) allows operation at full power when close mounted in a standard equipment rack, saving significant rack space in large systems. Featuring a proprietary Arc Count and Extinguish (ACE) system for managing systems where load arcing, is possible, the OL600W protects both itself and the load from damage that may be caused by excessive arcing, while allowing normal operation to continue.

PHYSICAL SPECIFICATIONS

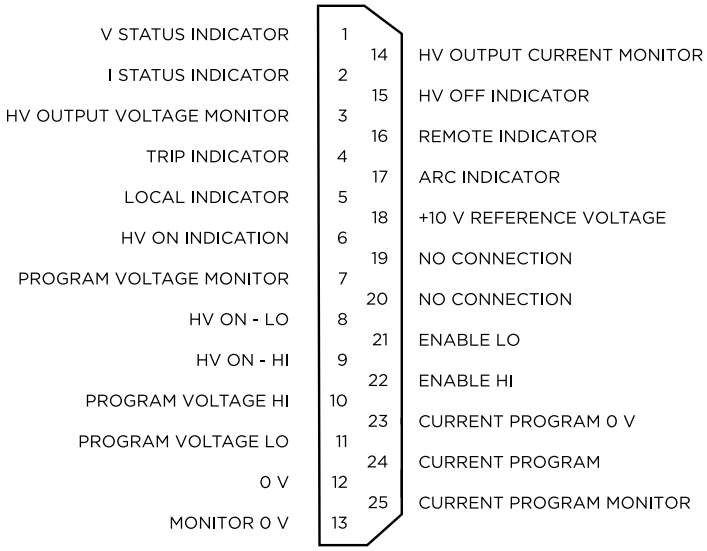
Output Power	600 W max at full rated output voltage and current
Output Voltage	Units available with max output from 1 to 80 kV
Output Current	Up to 600 mA for 1 kV and 7.5 mA for 80 kV, see page 5 table
Input Voltage	185 to 255 VAC or 103 to 127 VAC (auto range selection). Range does not change after power up. 47 to 63 Hz single phase and earth.
Input Current	Not exceeding 6 A_{rms} (185 to 255 VAC)
	Not exceeding 12 A_{rms} (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 $V_{pk\ to\ pk}$
	< 0.02% of rated output voltage +0.5 V_{rms}
Current Mode	< 0.5% of rated output voltage +2 $V_{pk\ to\ pk}$
	< 0.1% of rated output voltage +0.5 V_{rms}
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.
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	CE marked to meet the requirements of the Low Voltage Directive, 2006/95/EC, by complying with BS EN61010-1 when installed as a component part of compliant equipment.
Safety Class	Equipment Class 1
Usage	Indoor use only
Installation Category	II (BS EN61010)
Pollution Degree	2 (BS EN61010)
Portability	Non-portable

PHYSICAL SPECIFICATIONS

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 on the Restriction of use of certain Hazardous Substances (RoHS) in electrical and electronic equipment.
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.
Mechanical Specifications	
Dimensions	See outline drawing
Weight	6.5 kg for units up to 60 kV
	8 kg for the 80 kV unit
Connections	All connecions 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.

INTERFACE CONNECTIONS

Remote control 25-way female D-type connector:

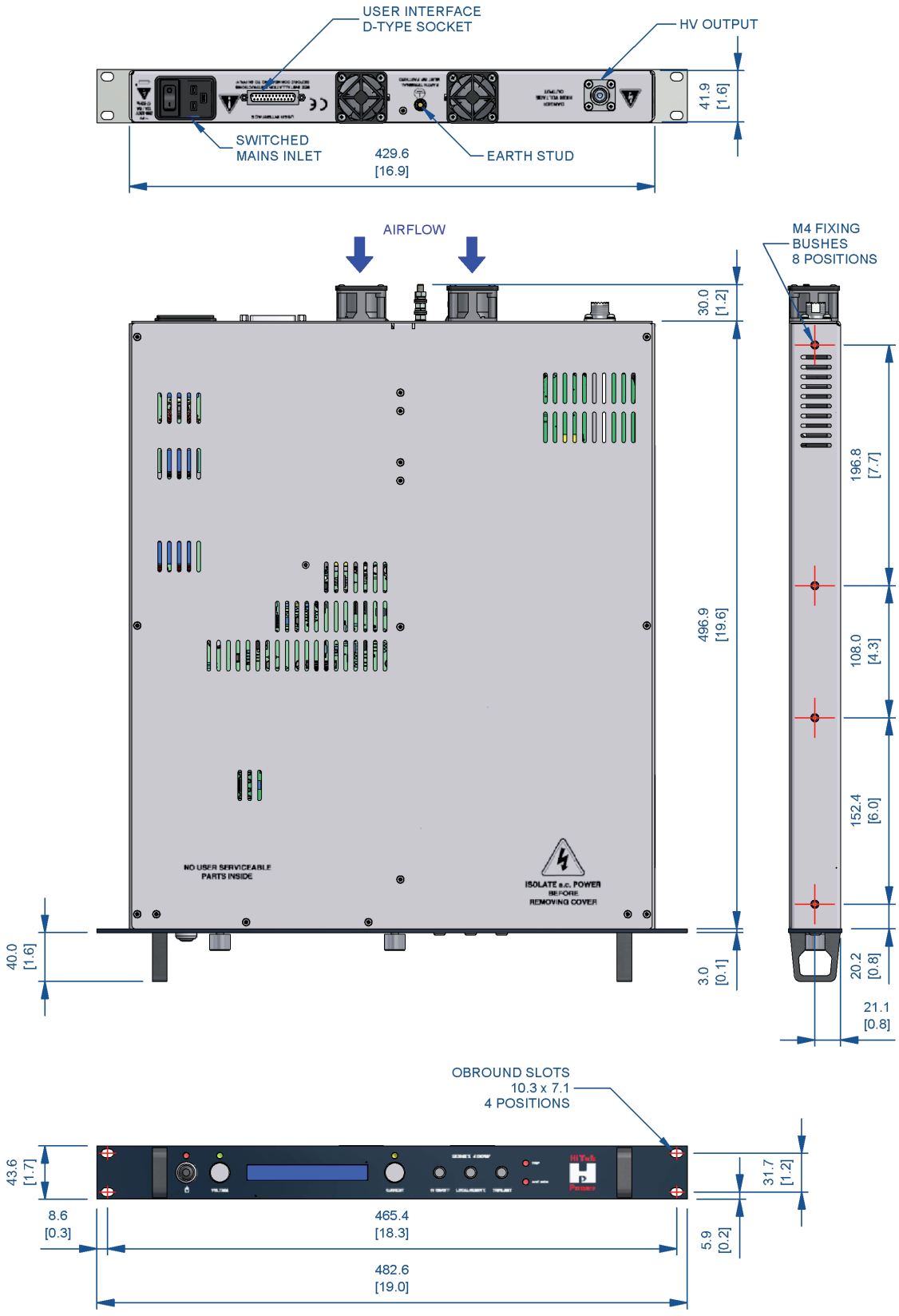


All logical indicators are open collector outputs rated at 16 V (max) in the off state. An internal 100 Ω resistor is connected in series with the open collector transistor. The pull down voltage is 0.9 V plus the internal resistor drop. The rated current is 10 mA.

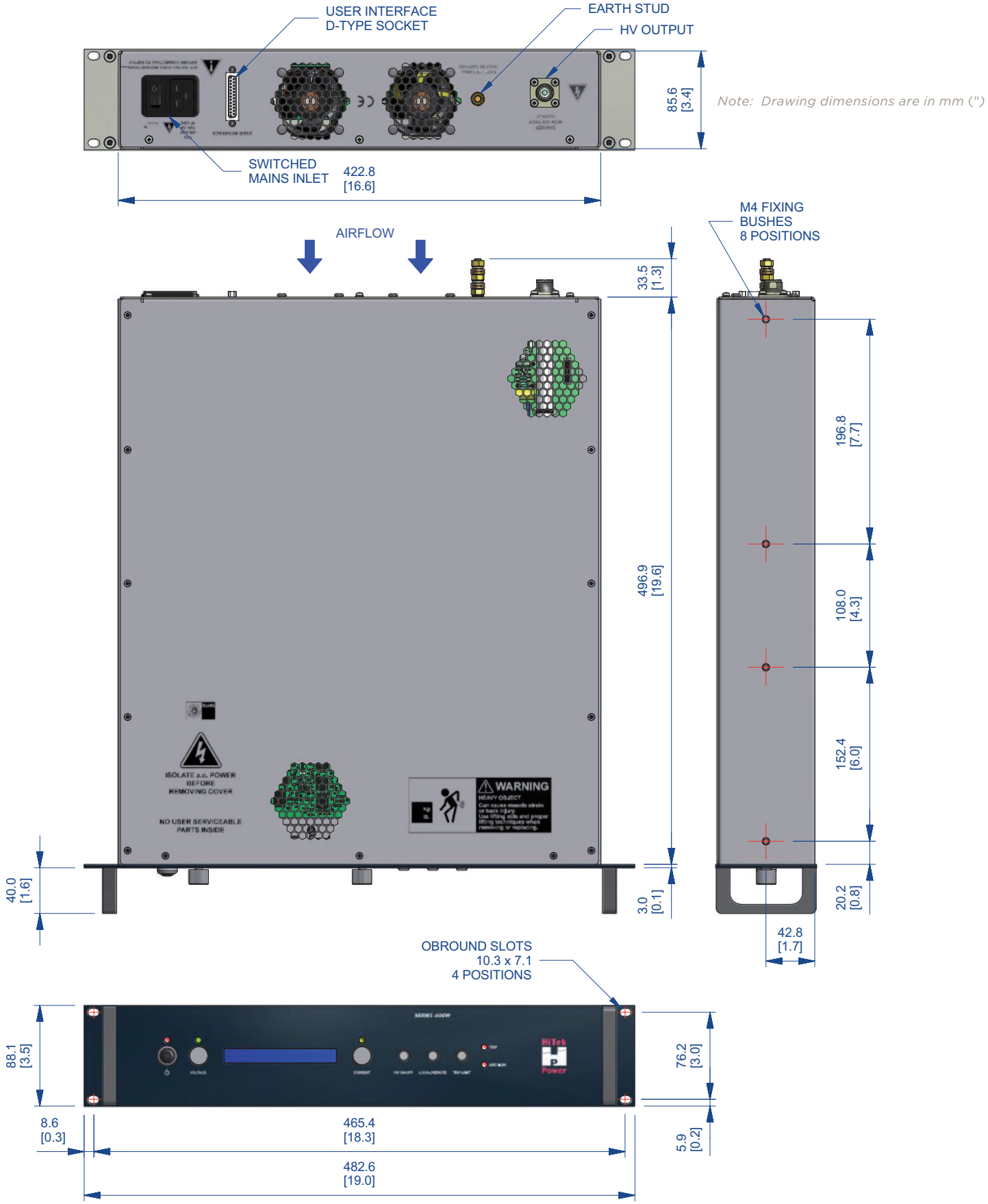
All analog voltage and current monitors are 0 to +10 V ±0.5% ±20 mV, with respect to pin 13, representing 0 to rated output. Signal impedance < 100 Ω and minimum external load resistance is 2 kΩ.

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.

CE These component power supplies meet the requirements of EC Directive 2006/95/EC (LVD)



Note: Drawing dimensions are in mm (")



Note: Drawing dimensions are in mm (")

The standard range of units available is as follows:

OUTPUT AND ORDERING INFORMATION		
Model	**Output Voltage**	**Output Current**
OL600W-102*	1 kV	600 mA
OL600W-502*	5 kV	120 mA
OL600W-103*	10 kV	60 mA
OL600W-203*	20 kV	30 mA
OL600W-303*	30 kV	20 mA
OL600W-403*	40 kV	15 mA
OL600W-503*	50 kV	12 mA
OL600W-603*	60 kV	10 mA
OL600W-803*	80 kV**	7.5 mA

** Add P for a positive polarity unit or N for a negative polarity unit. eg: part number for a 20 kV positive unit: OL600W-203P*

*** 80 kV unit utilizes an encapsulated HV section and is housed within a 2 U chassis.*

For voltages not listed above, please contact our sales team.

For international contact information, visit
advanced-energy.com.

ENG-HV-OL600W-230-01 10.16

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X-ON Electronics

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