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HITEK POWER OL400W SERIES

400 W HIGH VOLTAGE POWER SUPPLIES



Designed using the latest power switching IGBTs to ensure efficient and reliable operation over the full operating range, the OL400W series gives excellent performance in the most severe electrical environments. The OL400W utilizes air as the primary insulation medium for voltages up to 60 kV, achieving a high packing density for high voltage supplies giving 65 W per I (1 W per in³). The 1 U construction (2 U for 80 kV units) allows operation at full power when close mounted in a standard equipment rack, giving significant savings in rack space in large systems. Featuring a proprietary Arc Count and Extinguish (ACE) system for managing systems where load arcing is possible, the OL400W series protects both itself and the load from damage that may be caused by excessive arcing while allowing normal operation to continue.

PRODUCT HIGHLIGHTS

- Output voltages from 1 to 80 kV
- High packing density: 400 W in 1 U (80 kV 2 U)
- Exceptional reliability
- Complies with SEMI F47 standard
- High stability
- Arc Count and Extinguish (ACE)
- Marked for EU LV Directive 2006/95/EC
- RoHS compliant to EU Directive 2011/65/EU
- Full local and remote control monitoring
- Voltage or current control
- Custom options available

TYPICAL APPLICATIONS

difficulture.

- Ion implantation
- Electron microscopes
- Insulation testing

ELECTRICAL SPECIFICATIONS

Specifications			
Output Power	400 W max at full rated output voltage and current		
Output Voltage	Units available with max output voltages from 1 to 80 kV		
Output Current	Up to 400 mA for 1 kV and 5 mA for 80 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 5 Arms (185 to 255 VAC)		
	Not exceeding 10 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 V, peak to peak or < 0.02% of rated output voltage +0.5 Vrms		
	Current mode: < 0.5% of rated output voltage + 2 V, peak to peak or < 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 per °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)	nd Extinguish (ACE) Each time the ACE system detects an arc, it blanks the supply off for a brief period to extinguish the arc. Th unit is then allowed to recover. If more arcs occur, they are counted to determine the arc rate; if this exceed safe level, the power supply is shut down. The parameters are factory set.		
Operating Temperature	0 to 40°C (32 to 104°F)		
Storage Temperature	-20 to 70°C (-4 to 158°F)		
Humidity	80% max relative humidity up to 31°C (88°F), reducing linearly to 50% at 40°C (104°F)		
	Non-condensing (ref. BS EN61010-1)		
Altitude	Sea level to 2000 m (6500')		
Safety	Meets 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 and is CE marked accordingly.		
Safety Class	Equipment Class 1		
Usage	Indoor use only		
Installation Category	II (BSEN61010)		
Pollution Degree	2 (BSEN61010)		
Portability	Non-portable		



ELECTRICAL SPECIFICATIONS (CONTINUED)

Specifications				
EMC	Intended for installation as a component of a system. 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 30 A/m at 50/60 Hz			
	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 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 > 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 per sec 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 no gap is required above or below the unit provided the side air vents are clear by at least 15 mm.			



MECHANICAL SPECIFICATIONS



HITEK POWER OL400W SERIES





MECHANICAL SPECIFICATIONS (CONTINUED)

Dimensions	See outline drawing	
Weight	6.5 kg for units up to 60 kV	
	8 kg for the 80 kV unit	
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	

INTERFACE

Remote control 25-way, female D-type connector:

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

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 $\pm 0.5\% \pm 20$ mV, with respect to pin 13, representing 0 to rated output. Signal impedance < 100 Ω and min external load resistance is 2 k Ω .

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 $\pm 0.2\%$ of setting $\pm 0.1\%$ of rating. Input impedance > 50 k Ω .



ORDERING INFORMATION

Model	Output Voltage	Output Current
OL400W-102*	1 kV	400 mA
OL400W-502*	5 kV	80 mA
OL400W-103*	10 kV	40 mA
OL400W-203*	20 kV	20 mA
OL400W-303*	30 kV	13.3 mA
OL400W-403*	40 kV	10 mA
OL400W-503*	50 kV	8 mA
OL400W-603*	60 kV	6.7 mA
OL400W-803*	80 kV**	5 mA

* Add P for a positive polarity unit or N for a negative polarity unit. e.g.: part number for a 20 kV positive unit: OL400W-203P

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

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





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.

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

HVSales@aei.com +1.970.221.0108



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Телефон: 8 (812) 309-75-97 (многоканальный) Факс: 8 (812) 320-03-32 Электронная почта: ocean@oceanchips.ru Web: http://oceanchips.ru/ Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А