

# HITEK POWER MV2000 SERIES

## MEDIUM-VOLTAGE HIGH CURRENT POWER SUPPLIES



The MV2000 series of high-performance, medium output voltage power supplies are suitable for a wide variety of general-purpose applications. The MV2000 series offers output voltages ranging from 10 to 300 V with a max output power of 2 kW in a compact 1 U 19" rack-mountable chassis. Parallel/series operation of units can be easily configured to provide higher output power levels to suit specific customer applications and/or provide n+1 redundancy.

### PRODUCT HIGHLIGHTS

- 2 kW output power
- Output voltages from 10 to 300 V with customer-defined derivatives upon request
- High packing density: 2 kW in 1 U
- Parallel/series operation
- Stackable—cooling is front to rear
- Active power factor correction
- CE marked for EU LV Directive 2006/95/EC
- RoHS compliant to EU Directive 2011/65/EU

### TYPICAL APPLICATIONS

- X-ray equipment
- Component testing
- Heaters
- Magnets
- Battery management
- Ion implantation
- Automated test

## ELECTRICAL SPECIFICATIONS

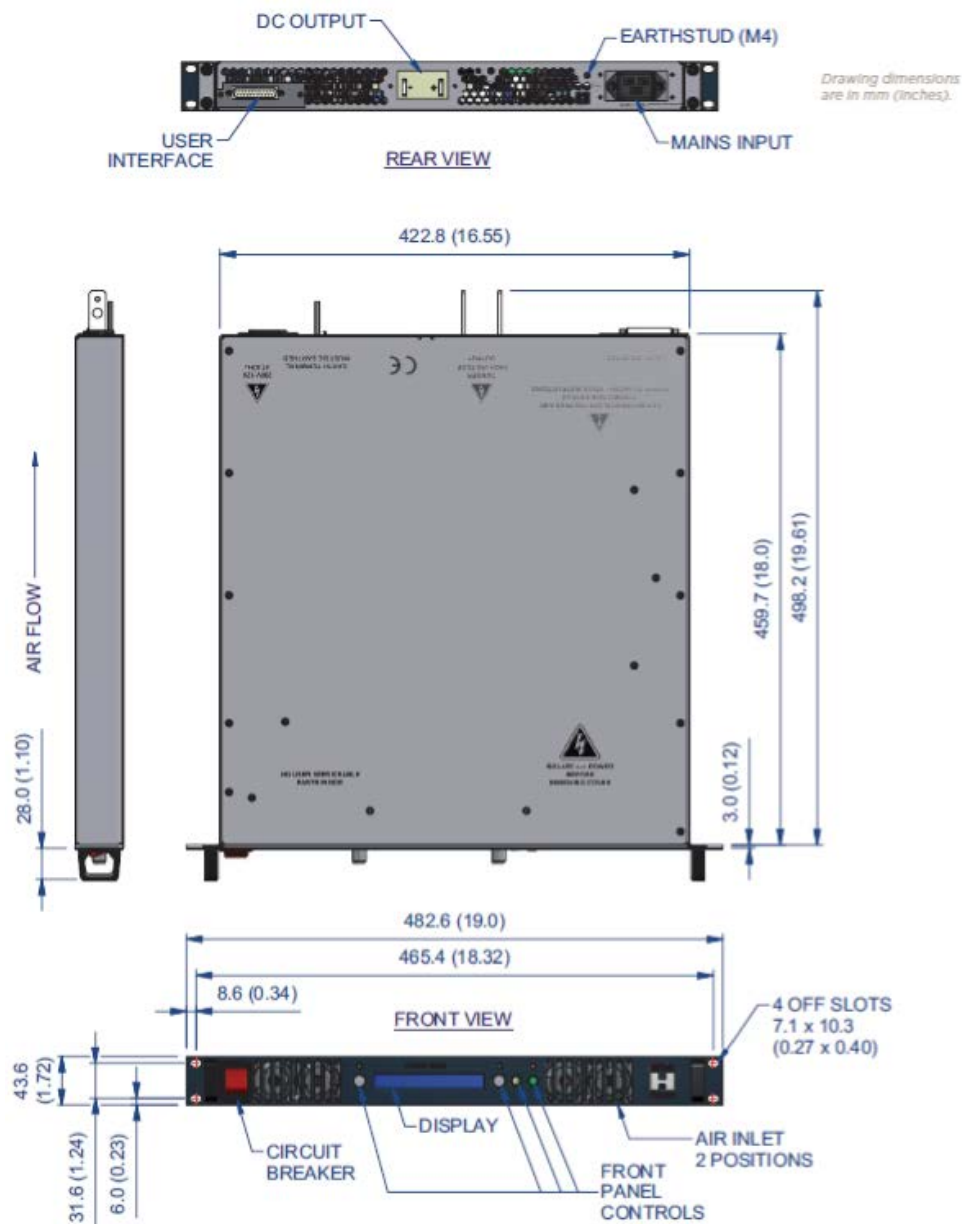
Output Power	2 kW max at full rated output voltage and current
Output Voltage	Units available with max output voltages from 10 to 300 V
Output Current	Up to 100 A for 20 V and 6.5 A for 300 V
Input Voltage	185 to 255 VAC 47 to 63 Hz single phase plus protective earth, operation below 185 VAC is possible with linear power derating down to 1 kW at 85 VAC
Input Current	Not exceeding 13 A <sub>rms</sub> (185 to 255 VAC). Harmonics are controlled with active power factor correction.
Polarity	All models provide positive polarity. The output can be isolated from the chassis (by up to 900 VDC) to provide negative outputs if required. Control signals are referenced to the negative output.
Specification Range	Specifications apply above 5% of rated output voltage. The output can be controlled down to < 0.25% of rated output voltage.
Output Ripple	Voltage mode: < 0.1% peak to peak of rated output voltage 50 mV peak to peak Current mode: < 0.2% peak to peak of rated output current 50 mA peak to peak
Output Noise	< 300 mV up to 20 MHz
Voltage Regulation	Line: < 0.05% deviation in output voltage set point for a 10% change in supply line voltage Load: < 0.1% deviation in output voltage set point for a 0 to 100% change in load current
Current Regulation	Line: < 0.1% deviation in output current set point for a 10% change in supply line voltage Load: < 0.1% deviation in output current set point for a 0 to 100% change in output voltage
Transient Response	Response for a 10 to 90% or 90 to 10% step change in load. Overshoot/undershoot < 2% of rated output. Recovery to within 0.1% of rated output < 10 msec
Temperature Coefficient	100 ppm per °C (0.01% per °C)
Drift	< 0.5% per 8 h after 1 h warmup
Efficiency	> 85% at full output power
Protection	Over temperature Output over voltage (tracking set point available) Output over current (tracking set point available) Fan failure Input under voltage
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 it is CE marked accordingly.
Safety Class	Equipment Class 1
Usage	Indoor use only
Installation Category	II (BS EN61010)
Pollution Degree	2 (BS EN61010)
Portability	Non-portable

ELECTRICAL SPECIFICATIONS (CONTINUED)

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 per m at 50/60 Hz
		EN61000-3-2 Limits for harmonic current emissions
		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 of > 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 front panel 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 front of the unit, exhaust on the rear of the unit. Min air flow required is 3 m per sec at the input to the fan.	
	For slide and shelf mounting a 25 mm gap must be provided at the front and the rear of the unit for air exhaust. No gap above or below the unit is necessary.	

**MECHANICAL SPECIFICATIONS**

Dimensions	See outline drawing
Weight	6.6 kg (14.55 lb)
Connections	All connections are mounted on the rear panel.
Mains	IEC320-C20 16 A with integrated two pole switch
Safety Earth	M4 stud
Output	Bus bars
Front panel	Stoving enamel trimite full gloss S60/9 color blue RAL5011 as standard



**INTERFACE**

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

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.

Max current available from the 10 V reference is 2 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 min 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.



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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



**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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