Series MV2000
MEDIUM VOLTAGE HIGH CURRENT POWER SUPPLIES

FEATURES

- 2kW output power
- Output voltages from 20V to 300V
- High Packing Density - 2kW in 1U
- Parallel/series operation
- Stackable, cooling is front to rear
- Active Power Factor Correction
- Custom options available
- CE Marked for EU LV Directive 2006/95/EC
- RoHS Compliant to EU Directive 2011/65/EU

DESCRIPTION

The HiTek Power Series MV2000 high performance, medium output voltage power supplies are suitable for a wide variety of general purpose applications, including component testing, heaters, magnets, battery management, ion implantation and automated test.

The Series MV2000 offers output voltages ranging from 20V to 300V with a maximum output power of 2kW in a compact 1U 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.

The Series MV2000 incorporates a power factor corrector enabling the units to operate across a wide range of mains input voltages. Control and monitoring is available both locally via the front panel and remotely via the rear panel user interface.

Custom interface designs can be provided, making the MV2000 range a flexible solution for all your industrial power supply needs. These include isolation (up to 1000VDC) and RS232.

SPECIFICATION

Output Power:
2kW maximum at full rated output voltage and current.

Output Voltage:
Units available with maximum output voltages from 20V to 300V.

Output Current:
Up to 100A for 20V and 6.5A for 300V, see table.

Input Voltage:
185VAC to 255VAC 47-63Hz single phase plus protective earth, operation below 185VAC is possible with linear power de-rating down to 1kW at 85VAC.

Input Current:
Not exceeding 13A rms (185VAC to 255VAC), 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 900VDC) 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 less than 0.25% of rated output voltage.

Output Ripple:

Voltage Mode:	Less than 0.1% peak to peak of rated output voltage + 50mV peak to peak.
Current Mode:	Less than 0.2% peak to peak of rated output current + 50mA peak to peak.

Output Noise:
Less than 300mV up to 20MHz.

Voltage Regulation:

Line:	Less than 0.05% deviation in output voltage set point for a 10% change in supply line voltage.
Load:	Less than 0.1% deviation in output voltage set point for a 0 to 100% change in load current.

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Current Regulation:

Line:	Less than 0.1% deviation in output current set point for a 10% change in supply line voltage.
Load:	Less than 0.1% deviation in output current set point for a 0 to 100% change in output voltage.

Transient Response:
Response for a 10%-90% or 90%-10% step change in load. Overshoot/ undershoot less than 2% of rated output. Recovery to within 0.1% of rated output less than 10ms.

Temperature Coefficient:
100ppm/°C (0.01%/°C).

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

Efficiency:
Better than 85% at full output power.

Protection:
Over temperature
Output overvoltage (tracking set point available)
Output overcurrent (tracking set point available)
Fan failure
Input undervoltage

Operating Temperature:
0ºC to +40ºC (32°F to 140°F).

Storage Temperature:
-20ºC to +70ºC (-4°F to 158°F).

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

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

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. It is CE marked accordingly.

Safety Class:
Equipment Class 1.

Usage:
Indoor use only.

Installation Category:
II (BSEN61010).

Pollution Degree:
2 (BSEN61010).

Portability:
Non-portable.

EMC:
The Series MV2000 is 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 ±4kV contact, ±8kV air discharge
EN61000-4-4 Fast transients on mains input – levels ±2kV
EN61000-4-5 Surges – levels ±2kV line to earth, ±1kV line to line
EN61000-4-8 Magnetic fields – levels 30A/m at 50/60Hz
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:
The Series MV2000 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 better than 0.5% of rated output. Current is displayed with a resolution of better than 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. Minimum air flow required is 3m/s at the input to the fan.

For slide and shelf mounting a 25mm 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 Specification:

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

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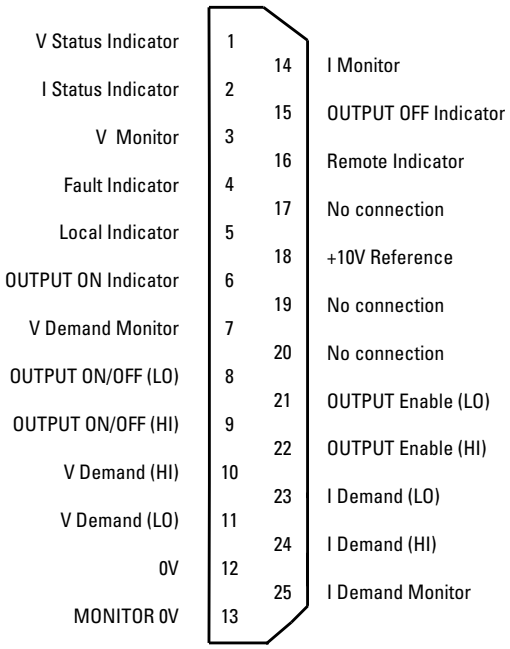
Outputs and Ordering Information:

Model No	Output Voltage	Output Current
MV2000-200	20V	100A
MV2000-300	30V	66.5A
MV2000-400	40V	50A
MV2000-500	50V	40A
MV2000-600	60V	33A
MV2000-700	70V	28.5A
MV2000-800	80V	25A
MV2000-900	90V	22A
MV2000-101	100V	20A
MV2000-111	110V	18A
MV2000-121	120V	16.5A
MV2000-131	130V	15A
MV2000-141	140V	14A
MV2000-151	150V	13A
MV2000-161	160V	12.5A
MV2000-171	170V	12A
MV2000-181	180V	11A
MV2000-191	190V	10.5A
MV2000-201	200V	10A
MV2000-211	210V	9.5A
MV2000-221	220V	9A
MV2000-231	230V	8.5A
MV2000-241	240V	8A
MV2000-251	250V	8A
MV2000-261	260V	7.5A
MV2000-271	270V	7.5A
MV2000-281	280V	7A
MV2000-291	290V	7A
MV2000-301	300V	6.5A

If none of the models listed above suit your requirements, please contact our Sales Team to discuss a custom version (please see back page for contact details).

Interface Connections:

Remote control 25-way female D-type connector:



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

Max current available from the +10V reference is 2mA.

All analogue Voltage and Current Monitors are 0V to +10V ±0.5% ±20mV, with respect to pin 13, representing 0 to rated output. Signal impedance less than 100Ω and minimum external load resistance is 2kΩ.

All analogue Voltage and Current inputs are 0V to +10V on the HI input with respect to the LO input representing 0V to rated output ±0.2% of setting ±0.1% of rating. Input impedance greater than 50kΩ.

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

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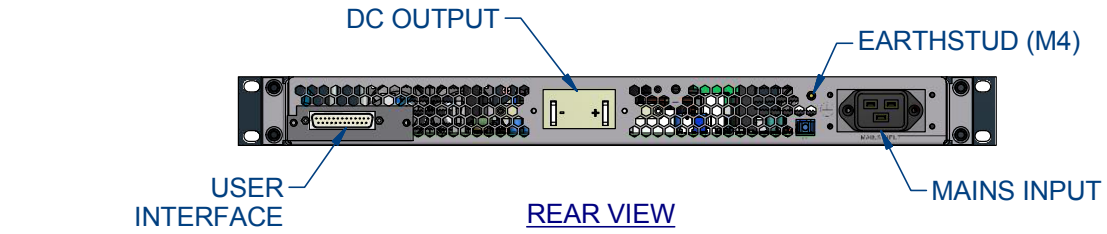
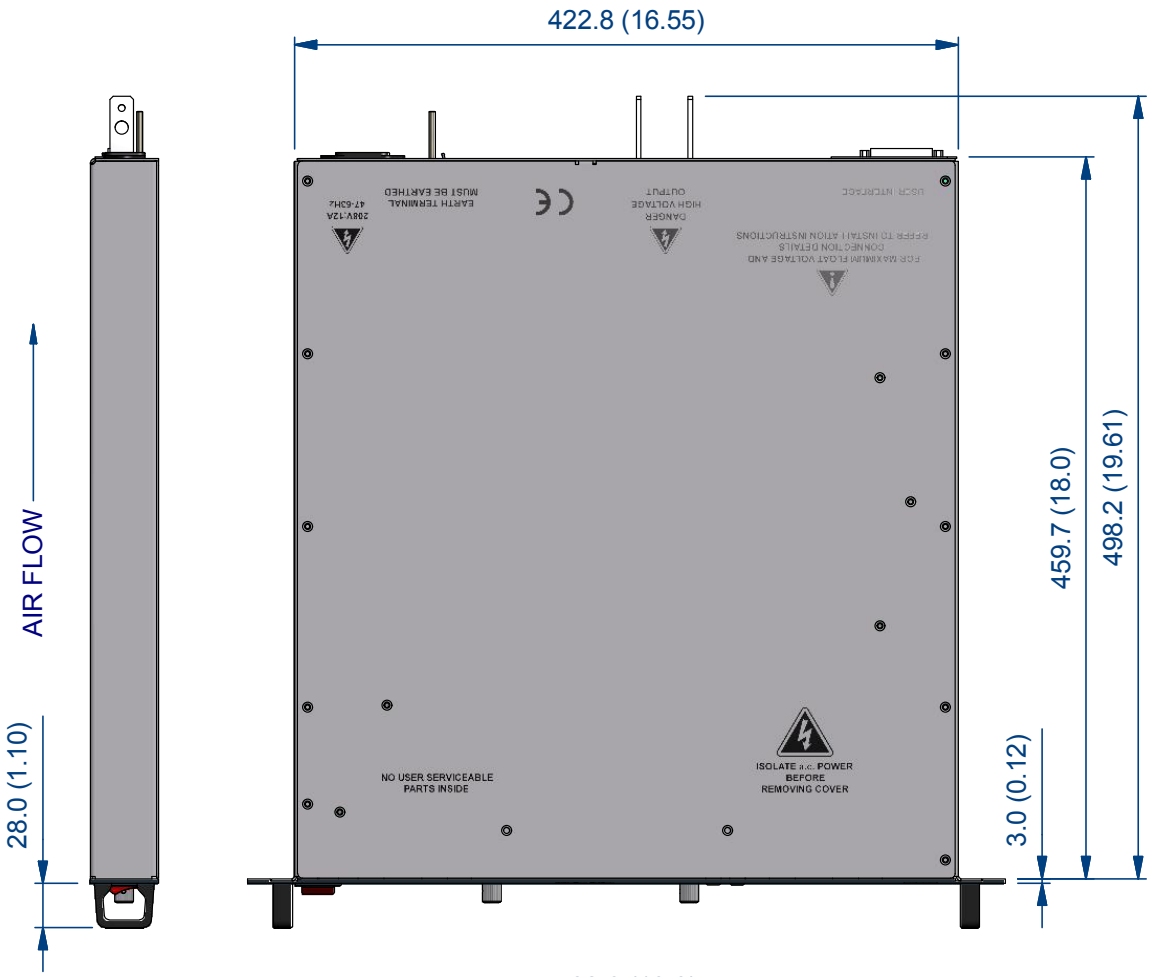
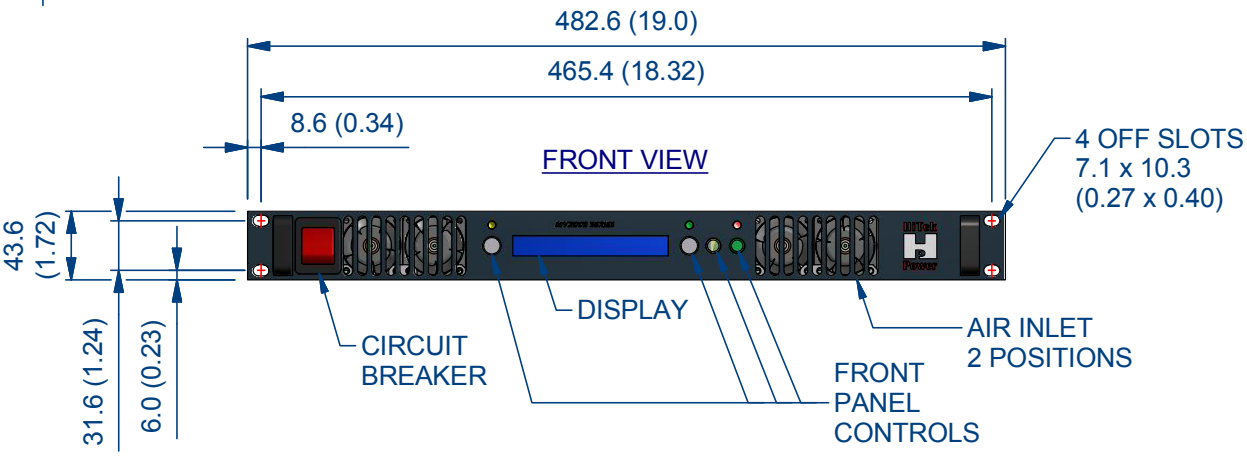


REAR VIEW





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

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