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- 1 to 4 configurable high-voltage output channels
- Voltage ranges from 0 to 62VDC through 40kV
- 4 to 250 watts per channel, up to 1000 watts total
- Independent control & monitoring of each channel
- Voltage and Current meters for each channel
- Constant current / Constant voltage auto-crossover
- Pre-set before & during bias capability
- PLC Analog/Digital Remote operation capability

GENERAL INFORMATION:

The "HV Rack" power system is a fully featured, configurable chassis, enabling end users to select and to specify the UltraVolt high-voltage power supply (HVPS) operating in each channel from UltraVolt's catalog of more than 450 models. This combination provides accurate control and measurement of high-voltage power supply and HV system performance.

FRONT PANEL:

The "HV Rack" system can provide up to 4 channels of high-voltage power. Each channel has full front-panel control of voltage and current as well as monitoring and preset capability. In addition to the individual channel controls, there is a main power switch that will disconnect the AC line and a 'remote' indicator to show when the rear panel remote/local control selection switch is in the 'remote' position.

METERING:

Each channel has a 4½-digit LED meter to indicate the actual output voltage. The output-voltage signal is derived from the HV monitor on the UltraVolt power supply and is scaled and calibrated to within 1% of full scale. The current is displayed on a 3½-digit LED meter and is derived from the current monitor in the UltraVolt power supply. The current monitor is nulled to eliminate any offsets, scaled, and calibrated to within 1% or 5% of full scale, depending on the models in that channel.

Each meter has illuminated indicators for scale factor. These indicators will display either "Volts" or "Kilo Volts" above the voltage meter and "Amps," "Milli Amps," or "Micro Amps" beneath the current meter. These indicators are factory set and are configured depending upon the UltraVolt model installed in each channel. The indicators are illuminated whenever the chassis main power is on.

PRESET:

Each channel has a momentary, push-button "Preset" switch. When this switch is pressed and held, the meters will read the programming, or set points, for the voltage and current. When released, the meters revert back to monitoring the actual output. This function is operational whether the HV is disabled or enabled. It provides the capability to set or to verify set points for current and voltage before and during high voltage operation.

VOLTAGE AND CURRENT PROGRAMMING:

Each channel has a set of 10-turn locking controls to set the voltage and current programming levels. These are the set points at which the unit will operate once the enable signal is given.

Each channel has illuminated indicators to show when the unit is in "Voltage Regulation" or "Current Regulation". The "HV Rack" system has automatic-crossover capability, which is determined by the levels at which the user has set the voltage and current programming and by the loading conditions. These indicators are unlit when the unit is disabled.



ENABLE:

Each channel has a latching, enable push-button switch that is illuminated. Push the button to enable/disable (ON/OFF) the high voltage output for that channel.

When the power supply is in "Remote" mode and is given an enable signal to turn on the high voltage, the switch will light up.

REMOTE CONTROL:

"HV Rack" Series units are equipped with remote control capability via a rear-panel, 37-pin, 'D' female connector (metal shell connected to the chassis); a remote/local selector switch; and a green, power-on, LED indicator. The 37-pin connector provides a full set of control functions for each of the HV Rack system's four channels. The current and voltage monitors are present at all times. Enable, voltage programming, and current programming for all channels are accessible when the remote/local switch is in the "Remote" position. In addition, there is a global disable signal, which will disable all channels at the same time. For a more complete description of the rear-panel interface, control, and function please see the Diagram C: Rear Panel. Optional USB control is available - see the Accessories & Connectors data sheet.

CHASSIS:

The "HV Rack" power system's chassis is equipped with PEM nut-mounting patterns on both sides to support standard rack slides. The "HV Rack" system can also be placed in a standard rack drawer or used independently on the bench top with the 5 supplied rubber feet. Note, the unit is designed to be cooled via a combination of convection and forced air; therefore, it is important not to block the air vents.

The AC input operates through an EMI/RFI-filtered, IEC 320/614 compatible power entry module. The unit is equipped with one to four 300W AC-to-DC, low-voltage power supplies (LVPS) depending on the model ordered. Each LVPS can power UltraVolt units up to 250 watts of output power.

The "HV Rack" power system has a master AC power switch on the back panel, which will cut AC power to the "HV Rack" system. This switch must be on for the front panel power switch to be active. The AC power is also fused through a 5mm x 20mm fuse located on the back panel.

ENVIRONMENT:

The "HV Rack" Series power systems can operate at full power at case temperatures from -40 to +65°C. All units receive a 24-hour burn-in prior to final test. Other enhanced capabilities are available. Please contact the factory.

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Remote Control Interface Connections

Parameter	Conditions	Models			
AC Input		**HV RACK X-250**	**HV RACK X-500**	**HV RACK X-750**	**HV RACK X-1000**
Voltage	Full Power, Autoswitching	115/230VAC, 50/60Hz	115/230VAC, 50/60Hz	230VAC, 50/60Hz	230VAC, 50/60Hz
Power	120VAC, Max Eout, Full Load	375W	750W	N/A	N/A
Power	240VAC, Max Eout, Full Load	375W	750W	1125W	1500W
Remote Control		**All Models**			
Enable	All Channels	TTL high to enable, low to disable (DEFAULT IS DISABLE)			
V Control	All Channels	0V to 4.64V = 0V to 100% HV out (5V = 108% HV out)			
HV Monitor	All Channels	0V to 4.64V = 0V out to 100% V out (5V = 108% V out)			
I Control	All Channels	0V to 4.64V = 0A to 100% Io (5V = 108% Io)			
I Monitor	All Channels	0V to 4.64V = 0A to 100% Io (5V = 108% Io)			
Reference Out	All Channels	5V precision voltage reference returned to signal ground			
LVPS Out	One Signal, PTC Fused	+15V±10%, 0 to 100mA			
Power Ground	One Signal	Return of LVPS Out			
Global Disable	One Signal	TTL signal disables all Channels, low to enable, high to disable (DEFAULT IS ENABLE)			
Output Meters		**Type of channel**		**Tolerance**	
Voltage	4½ Digit Red LED	All		1% Full Scale	
Current	3½ Digit Blue LED	All		5%/1% Full Scale	
Temperature		**All Models**			
Operating	Full Load, Max Eout, Case Temp.	+10°C to +45°C			
Storage	Non-Operating, Case Temp.	-40°C to +85°C			
		Extended temperature operation is available, please contact the factory.			
Altitude		**All Models**			
Operating	Standard Package	0 to 10,000 ft			
Storage	Standard Package	0 to 50,000 ft			
Humidity		**All Models**			
Operating	Standard Package	0 to 95% non-condensing			
Storage	Standard Package	0 to 95% non-condensing			

RESERVED
FOR
FUTURE USE

Specifications subject to change without notice

ULTRAVOLT HV Rack
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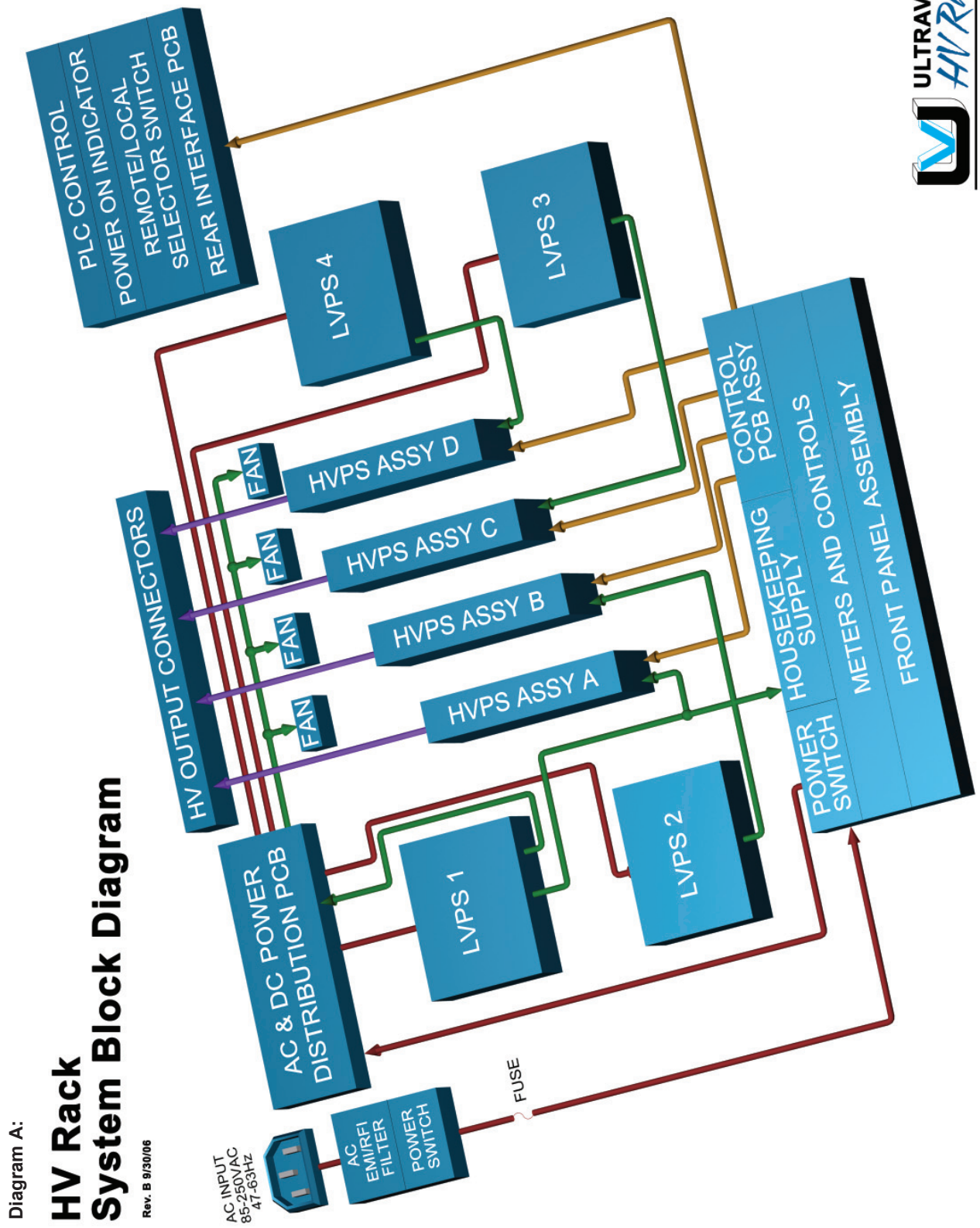


Diagram A:

HV Rack System Block Diagram

Rev. B 9/30/06

“HV RACK” SERIES

HIGH VOLTAGE POWER SYSTEM

Diagram B: Front Panel

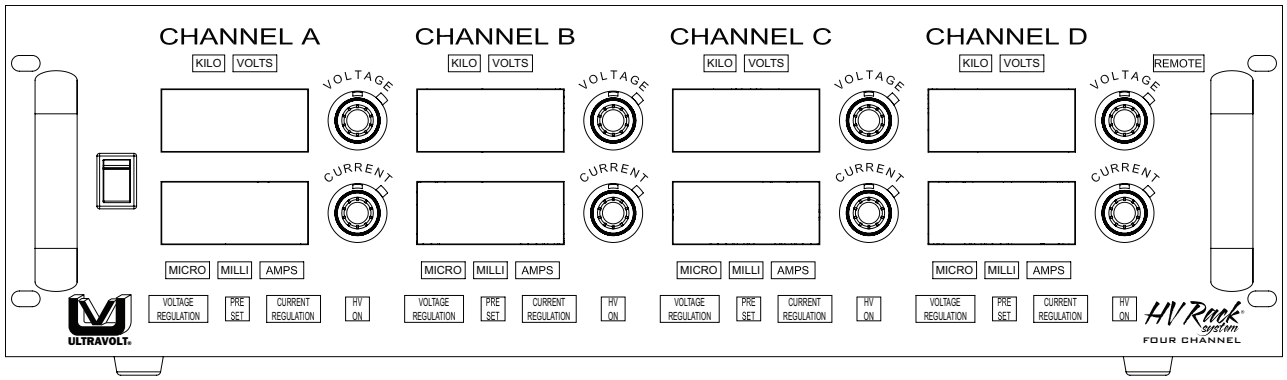
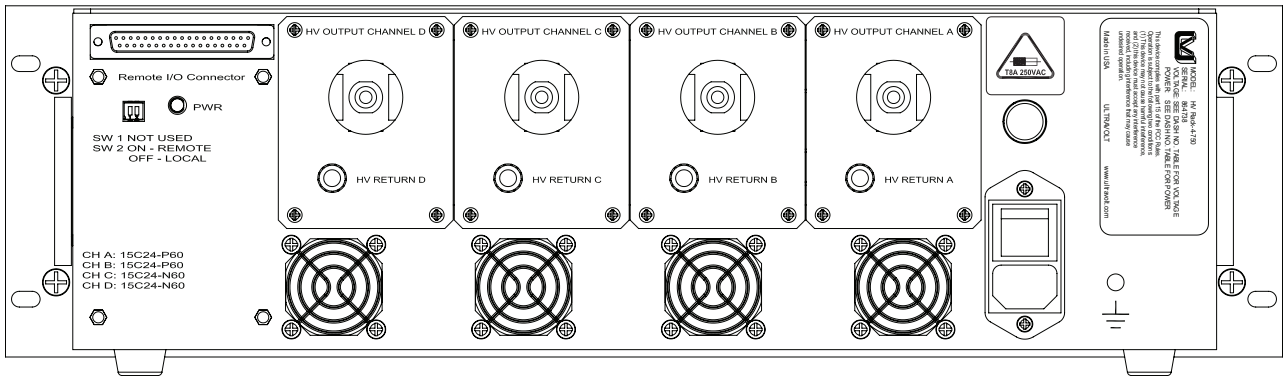


Diagram C: Rear Panel



Currently Available Options:

Floating/Isolated Channels

SHV Connectors

Amp Connectors

Fischer Connectors

Alden Connectors

Caton Connectors

Parker Medical Connectors

PROUDLY



MADE IN THE USA

Ordering Information

Type:	Description:
HV Rack-1-250	19” HV Rack with (1) set of meters & controls with 300 watts of LV power configured for: One UltraVolt HVPS 250W max output.
HV Rack-2-250	19” HV Rack with (2) sets of meters & controls with 300 watts of LV power configured for: Two UV HVPS 250W max combined output.
HV Rack-2-500	19” HV Rack with (2) sets of meters & controls with 600 watts of LV power configured for: Two UV HVPS 500W max combined output.
HV Rack-3-250	19” HV Rack with (3) set of meters & controls with 300 watts of LV power configured for: Three UV HVPS 250W max combined output.
HV Rack-3-500	19” HV Rack with (3) sets of meters & controls with 600 watts of LV power configured for: Three UV HVPS 500W max combined output.
HV Rack-3-750	19” HV Rack with (3) sets of meters & controls with 900 watts of LV power configured for: Three UV HVPS 750W max combined output.
HV Rack-4-250	19” HV Rack with (4) set of meters & controls with 300 watts of LV power configured for: Four UV HVPS 250W max combined output.
HV Rack-4-500	19” HV Rack with (4) sets of meters & controls with 600 watts of LV power configured for: Four UV HVPS 500W max combined output.
HV Rack-4-750	19” HV Rack with (4) sets of meters & controls with 900 watts of LV power configured for: Four UV HVPS 750W max combined output.
HV Rack-4-1000	19” HV Rack with (4) sets of meters & controls with 1200 watts of LV power configured for: Four UV HVPS 1000W max combined output.

The entire “HV Rack” system’s part number must include the complete part number of each UltraVolt HVPS to be installed. The following are examples of complete “HV Rack” system part numbers:

HV Rack-1-250: A=1C24-P125
HV Rack-2-250: A=15C25-P125, B=10A24-N30-F-M
HV Rack-3-250: A=30A24-N30-F-M, B=10A24-P15-F-M, C=2A12-P4-F-M
HV Rack-4-1000: A=1C24-P250, B=1C24-N250, C=1/2C24-P250, D=1/2C24-N250

The sum of the output power capability of the modules cannot exceed the total rack power capability.

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