

HPV SERIES

High Power High Voltage Power Supply



PRELIMINARY DATASHEET

The HPV Series of High-Power / High-Voltage regulated AC to DC power supplies deliver high performance energy for higher reliability 24/7 applications & environments such as medical, industrial, manufacturing, agriculture, food processing, and research equipment. The HPV Series has high control speed, high accuracy, and high efficiency (85%) compared to other devices of this type.

- 7 Models from 0 to 60kV through 200kV
- 6 Models from 0 to 6kW through 60kW
- Single-output & multi-output configurations available
- E-Beam configurations with floating Wehnelt, filament, and surge outputs

Typical applications for this series include the following:

- **High-power electron beams** in industrial applications such as electron beam welding, coating, linking, and surface treatment.
- **High-power electron tubes** such as Triodes, Tetrodes, Klystrons, X-ray tubes.
- **High-power high voltage** for accelerators, ion beams, pulsed power, electrostatic precipitators, medical, and research equipment.

- Available with Voltage regulation, Current regulation, and Emission regulation
- No minimum load required
- Short-circuit protection & arc protection
- Low ripple option

| PARAMETER | CONDITIONS | MODELS | | | | | | | | | | | | | | | | | | | | | | | | UNITS |
|-----------------------------|-----------------------------------|---|-----|-----|-----|-----|------|--------------|-----|-----|-----|-----|-----|--------------|-----|-----|-----|-----|-----|--------------|----|-----|-----|-----|-----|--------|
| INPUT | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage Range | Full Power | 230VAC (Control Power) & 400VAC (Main Power) ± 10% (Other Inputs Available) | | | | | | | | | | | | | | | | | | | | | | | | VAC |
| Frequency | All Modes | 47 to 63 | | | | | | | | | | | | | | | | | | | | | | | | Hz |
| Current | Max Load, Max Eout | See Tech Note | | | | | | | | | | | | | | | | | | | | | | | | A |
| OUTPUT (60kV-120kV) | | 60kV | | | | | | 80kV | | | | | | 100kV | | | | | | 120kV | | | | | | |
| Voltage Range | Nominal Input | 0 to 60 | | | | | | 0 to 80 | | | | | | 0 to 100 | | | | | | 0 to 120 | | | | | | kV |
| Power | Nominal Input, Max Eout | 6 | 10 | 15 | 30 | 45 | 60 | 6 | 10 | 15 | 30 | 45 | 60 | 6 | 10 | 15 | 30 | 45 | 60 | 6 | 10 | 15 | 30 | 45 | 60 | kW |
| Current | lout Entire Output Voltage Range | 100 | 167 | 250 | 500 | 750 | 1000 | 75 | 125 | 188 | 375 | 563 | 750 | 60 | 100 | 150 | 300 | 450 | 600 | 48 | 80 | 120 | 240 | 360 | 480 | mA |
| OUTPUT (150kV-200kV) | | 150kV | | | | | | 175kV | | | | | | 200kV | | | | | | | | | | | | |
| Voltage Range | Nominal Input | 0 to 150 | | | | | | 0 to 175 | | | | | | 0 to 200 | | | | | | kV | | | | | | |
| Power | Nominal Input, Max Eout | 6 | 10 | 15 | 30 | 45 | 60 | 6 | 10 | 15 | 30 | 45 | 60 | 6 | 10 | 15 | 30 | 45 | 60 | kW | | | | | | |
| Current | lout Entire Output Voltage Range | 40 | 67 | 100 | 200 | 300 | 400 | 34 | 57 | 86 | 171 | 257 | 343 | 30 | 50 | 75 | 150 | 225 | 300 | mA | | | | | | |
| ADDITIONAL OUTPUTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Filament | Floating on Main Output | 10V @ 20A; 10V @ 40A; or 20V @ 10A | | | | | | | | | | | | | | | | | | | | | | | | |
| Wehnelt | Floating on Main Output | 0 to 1.5kV @ 10mA; 0 to 2.5kV @ 10mA; or 0 to 3kV @ 10mA | | | | | | | | | | | | | | | | | | | | | | | | |
| Surge | Floating on Main Output | See Tech Note | | | | | | | | | | | | | | | | | | | | | | | | |
| OUTPUT | | ALL TYPES | | | | | | | | | | | | | | | | | | | | | | | | |
| Ramp Up | 0 to Max Voltage | 2 Seconds (Others Available) | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple | Full Load, Max Eout | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | %V p-p |
| Programming Accuracy | 10% to 100% Output Voltage | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | mV |
| Line Regulation | Nom. Input, Max Eout, Full Power | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | mV |
| Static Load Regulation | No Load to Full Load, Max Eout | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | mV |
| Stability | 30 Min. warmup, per 8 hr/ per day | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | VDC |
| Static Current Regulation | Nom. Input, Max Eout, Full Power | < 0.3% | | | | | | | | | | | | | | | | | | | | | | | | mA |
| ENVIRONMENTAL | | ALL TYPES | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating | Full Load, Max Eout, Case Temp. | 0 to 40 | | | | | | | | | | | | | | | | | | | | | | | | °C |
| Humidity | All Conditions, Standard Package | 0 to 80% non-condensing | | | | | | | | | | | | | | | | | | | | | | | | - |

Specifications subject to change without notice.



Making High Voltage Easier!®

Higher Service, Higher Performance, Higher Reliability

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CONSTRUCTION

Power Coated Steel

SIZE

Dimensions:

60-150kV at 6-15kW:

1000 L x 1200 W x 1600 H mm

60-80kV at 30-60kW:

1200 L x 1400 W x 1600 H mm

100-120kV at 30-60kW:

1200 L x 1500 W x 1800 H mm

150kV at 30-45kW:

1200 L x 1500 W x 1800 H mm

150kV at 60kW:

1300 L x 1600 W x 1800 H mm

175kV at 6-15kW:

1200 L x 1400 W x 1800 H mm

175kV at 30-45kW:

1300 L x 1700 W x 1900 H mm

175kV at 60kW:

1400 L x 1600 W x 1900 H mm

200kV at 6-15kW:

1400 L x 1600 W x 1900 H mm

200kV at 30-60kW:

1500 L x 1700 W x 2000 H mm

TOLERANCE

TBD

NOTES

Various HV output configurations available:

Single-output configuration, Multi-output configuration, E-Beam emission regulation via Wehnelt or filament, and capacitor charging for pulsed power.

Control & monitoring:

Main power control is separate from monitoring power to permit output monitoring with HV off. Features include AC main power keyswitch, HV on/off control, analog interface, interlock interface, 3 ½ digit digital display of output voltage & current. LED Status indicators for Main Power, ARC, Overload, Interlock, Remote Control. Optional delayed arcing trip after a defined number of arcs. Optional digital interfaces available for LAN, USB, RS232.

Cooling:

Water cooling is standard, refrigerant cooling is optional.

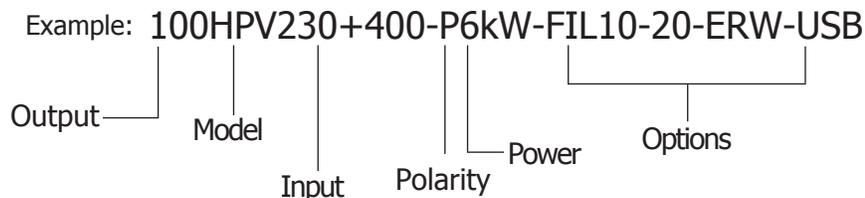
HV Output Cable:

Include 5 meter HV-output cable pluggable - load side end open

For outline drawings of the HPV Series, please contact the factory.

| ORDERING INFORMATION | | |
|-----------------------------|--------------------------------|-----------|
| Output | 60kV | 60 |
| | 80kV | 80 |
| | 100kV | 100 |
| | 120kV | 120 |
| | 150kV | 150 |
| | 175kV | 175 |
| | 200kV | 200 |
| Model | Series Name | HPV |
| Input | 230VAC & 400VAC | 230+400 |
| Polarity | Positive | -P |
| | Negative | -N |
| Power | 6kW | 6kW |
| | 10kW | 10kW |
| | 15kW | 15kW |
| | 30kW | 30kW |
| | 45kW | 45kW |
| | 60kW | 60kW |
| Optional Additional Outputs | Filament 10VAC @ 20Amps | -FIL10-20 |
| | Filament 10VAC @ 40Amps | -FIL10-40 |
| | Filament 20VAC @ 10Amps | -FIL20-10 |
| | Wehnelt 1500V @ 10mA | -WEH1.5 |
| | Wehnelt 2500V @ 10mA | -WEH2.5 |
| | Wehnelt 3000V @ 10mA | -WEH3.0 |
| | Surge | -SURGE |
| Other Options | Emission Regulation by Wehnelt | -ERW |
| | Emission Regulation Filament | -ERF |
| | Constant Current Regulation | -CCR |
| | Ripple Stripper Output Filter | -F |
| | Delayed Arc Counter | -AQ |
| | Refrigeration Cooling | -REF |
| Optional Digital Interfaces | Rear panel RS232 interface | -RS232 |
| | Rear panel USB interface | -USB |
| | Rear panel LAN interface | -LAN |

Contact the factory for other output & control requirements!



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*The HPV Series is not available in all territories. Please contact an UltraVolt Applications Engineer for details concerning sales in your area.



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