



500A Series Data Sheet
High Voltage Power Supply
Capacitor Charging and DC
Output Voltage from 1kV - 40kV
Output Power 500J/sec or 500W
Comprehensive remote control
Compact OEM Design



TDK-Lambda

www.us.tdk-lambda.com/hp

500A Series Specification

High Performance, cost effective, reliable, OEM style capacitor charging and DC power supply with average power rating of 500J/sec or 500W DC.

- Power rating of 500J/sec, 550J/sec peak
- 500W in continuous DC operation
- Output Voltages from 0-1kV to 0-40kV
- Compact air cooled OEM style package
- Medical safety approvals (UL60601-1)
- Patented parallel resonant inverter
- Excellent pulse to pulse repeatability
- Selectable 110 or 230VAC 1Ø input voltage
- Reliable, cost effective design with reduced parts count
- Optional Active PFC (pf = 0.98)
- Full remote control interface
- Simple parallel operation for higher power

Average Capacitor Charging Power	500 Joules/sec ($\frac{1}{2}CV^2 \times \text{Rep Rate}$)
Peak Capacitor Charging Power	550 Joules/sec ($\frac{1}{2}CV^2/t_{\text{charge}}$)
Average Continuous DC Power	500 Watts
Output Voltage Range	1, 1.5, 2, 3, 4, 5, 6, 10, 15, 20, 30, 40kV, variable from 10-100% of rated
Polarity	Available as fixed Positive or Negative. Please specify at time of ordering
HV Output	1-6kV Models - Air Insulated with RG58/U Coaxial cable and MHV connector 7-40kV Models - Oil Insulated with DS2024 Silicone lead & proprietary HV connector
AC Input Voltage	110VAC (90-140) or 230VAC (180-254), 50-60Hz 1Ø, selectable on input terminal block
AC Input Current - non PFC ⁽¹⁾	10A/5A without Active PFC
AC Input Current - Active PFC ⁽¹⁾	7A/3.5A with optional Active Electronic PFC
AC Connector	UL/CSA approved terminal block. User selectable position for 110 or 230VAC input
Power Factor	Non PFC pf = 0.65, Optional Active PFC - 0.98 at full load and nominal AC line
Efficiency	Better than 85% at full load
Stability	±0.2% per hour after 1 hour warmup
Temperature Coefficient	100ppm per °C typical
Stored Energy	Less than 0.3J all models
Pulse to Pulse Repeatability	±0.2% to 300Hz, consult factory for higher rep rates
Dimensions - inches (mm)	5.75 (146) W x 5.56 (141) H x 14.2 (361) D
Weight - lbs (kg) - 1-6kV Models	Non PFC - 8 (3.6), with optional PFC - 10 (4.5)
10-40kV Models	Non PFC - 12 (5.5), with optional PFC - 14 (6.5)
Ambient Temperature	Storage: -40 to +85°C. Operating: -20 to +45°C
Altitude	Storage: 40,000ft (12,000m), Operating: 9,900ft (3,000m)
Humidity	10-90%, non-condensing
Protection	Open/short circuits, Overloads, Arcs, Overtemp, Overvoltage
Agency Approvals	Certified to UL60601-1
Remote Control (all models)	Via 15-pin D-sub connector on rear of unit, Signals include, Vprogram (0-10V), HV Enable/Reset, Inhibit, Summary Fault, Load Fault, Vanalog, Vpeak
Accessories	Mating HV cable, control connector, operating manual, mounting brackets
Options	PFC - Active Electronic PFC LH - Low Inhibit. Replaces standard high Inhibit EN - Low Enable. Replaces standard high enable 5V - 0-5V Analog programming. Replaces standard 0-10V programming LP - Latching Overload Protection, requires HV reset after overload fault DC - Continuous DC operation
Ordering Info	Model - XXkV - POS (or NEG) - PFC (blank for non PFC) - YY (options)
Ordering Examples	500A-10kV-POS, 500A-40kV-POS-PFC-LH, 500A-1kV-POS-PFC-DC

(1) Input current figure valid for repetition rates greater than 10Hz. For operation below 10Hz contact factory.

All specifications subject to change without notice

500A Mechanical Details

Front View

All Models



- 1 - Cooling Fan (Air exits this end)
- 2 - AC Input Connector
- 3 - 15pin D-sub Female Control Connector

Rear Views

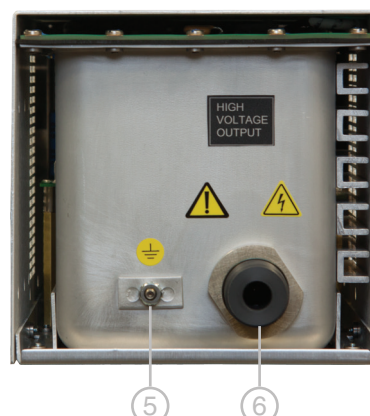
Outputs Voltages from 1-6kV



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- 4 - MHV Output Connector (1-6kV Models)

Output Voltages from 7-40kV



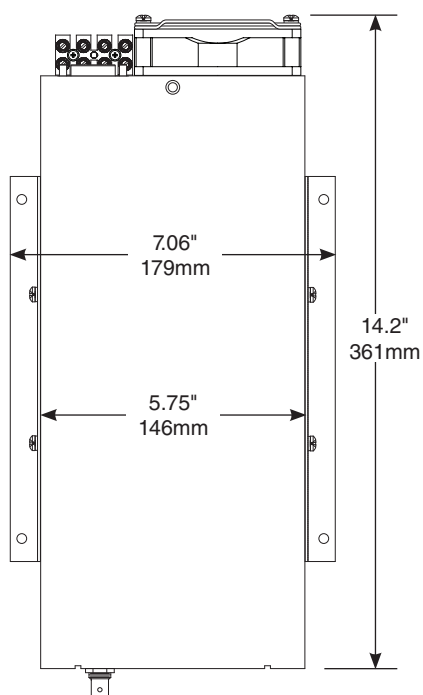
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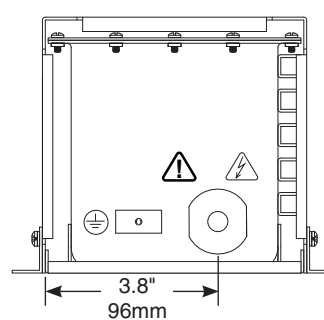
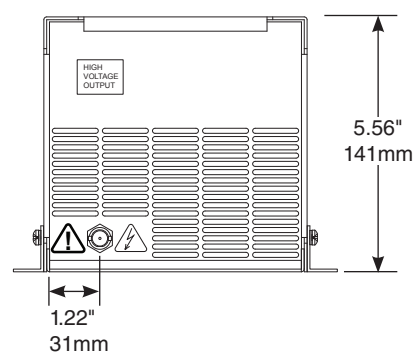
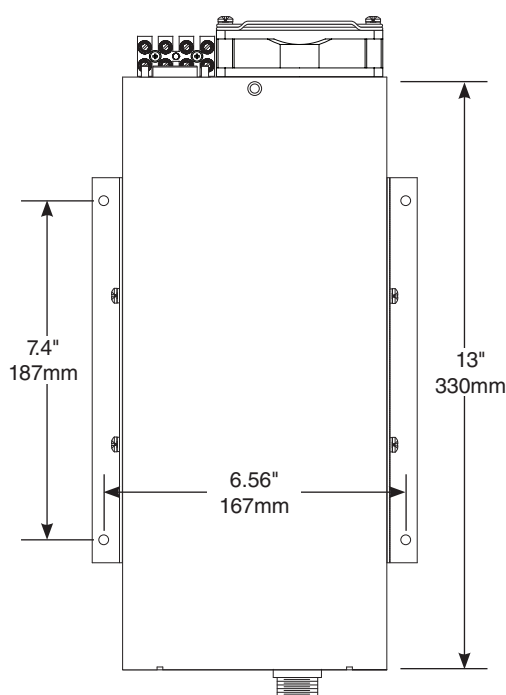
- 5 - Ground Stud (7-40kV Models)
- 6 - HV Output Connector (7-40kV Models)

Dimensional Outline Drawings

Outputs From 1kV to 6kV



Outputs From 7kV to 40kV



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