



102A Series Data Sheet
High Voltage Power Supply
Capacitor Charging and DC
Output Voltage from 1kV - 40kV
Output Power 1kJ/sec or 1kW
Comprehensive remote control
Compact OEM Design



TDK-Lambda

www.us.lambda.tdk.com

102A Series Specification

High Performance, cost effective, reliable, OEM style capacitor charging and DC power supply with average power rating of 1kJ/sec or 1kW DC.

- Power rating of 1kJ/sec, 1.1kJ/sec peak
- 1kW 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⁽²⁾
- 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	1,000 Joules/sec ($\frac{1}{2}CV^2 \times \text{Rep Rate}$)
Peak Capacitor Charging Power	1,100 Joules/sec ($\frac{1}{2}CV^2/t_{\text{charge}}$)
Average Continuous DC Power	1,000 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⁾	20A/10A without Active PFC
AC Input Current - Active PFC ^(1,2)	6.6A 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	102A-10kV-POS, 102A-40kV-POS-PFC-LH, 102A-1kV-POS-PFC-DC

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

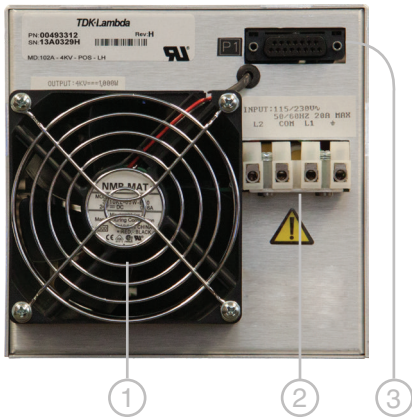
(2) 220VAC Input voltage only available with Active PFC option.

All specifications subject to change without notice

102A Mechanical Details

Front View

All Models



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

Rear Views

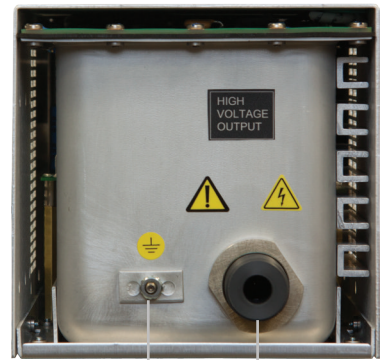
Outputs Voltages from 1-6kV



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

Output Voltages from 7-40kV

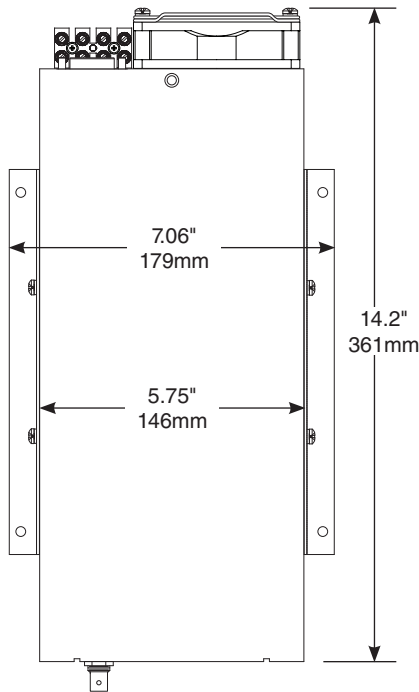


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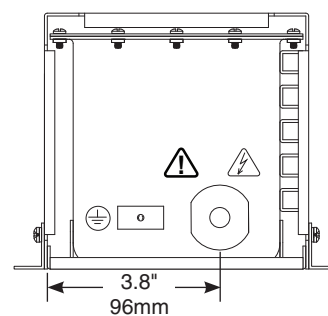
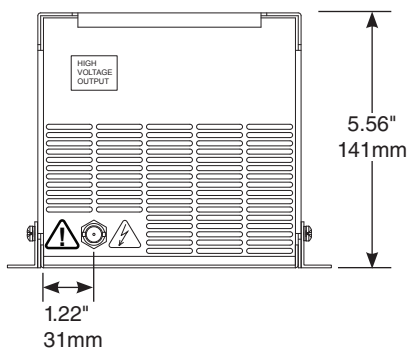
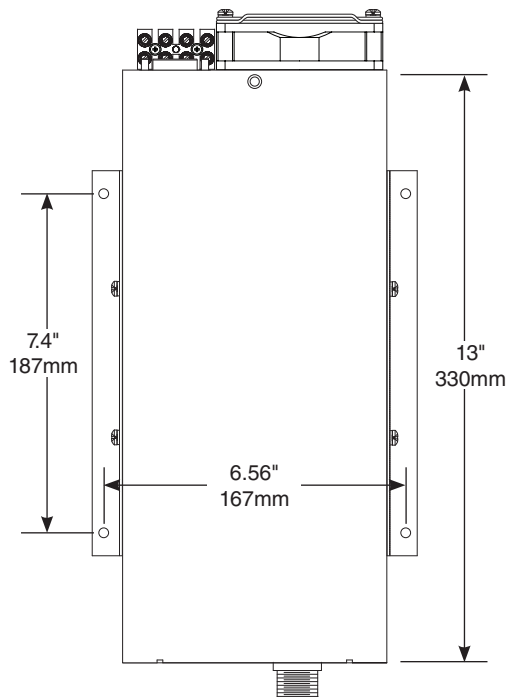
- 5 - Ground Stud (7-40kV Models)
- 6 - HV Output Connector (7-40kV Models)

Dimensional Outline Drawings

Outputs From 1kV to 6kV



Outputs From 7kV to 40kV



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