

APPLICATION NOTES FOR USE WITH SPELLMAN HIGH VOLTAGE POWER SUPPLIES

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What do you mean the output is “ground referenced”?

Most of Spellman’s standard catalog products are termed to be “ground referenced power supplies”. A ground referenced power supply typically only has only one (1) rated high voltage output connector. Internally the high voltage multiplier return is referenced to the grounded chassis of the unit. This chassis is referenced to “house ground” in the customer’s system via the safety ground wire in the power cable and a separate customer provided system ground connection. With the output of the supply ground referenced it is easy to sample the output voltage and current to obtain the feedback signals needed to regulate the supply. A high impedance, ground referenced, high voltage feedback divider monitors the output voltage, while a ground referenced current feedback resistor placed in series with the multiplier return monitors the output current. See Figure 1.

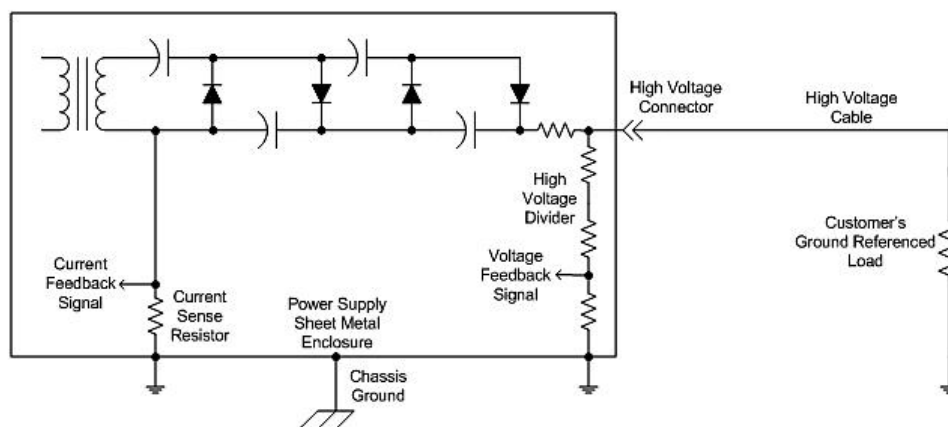


Figure One

With the customer’s load being referenced to ground the circuit is complete. All measurements made with regards to the power supply utilize earth ground as the reference potential. Ground referencing a power supply simplifies its design, and fabrication. All programming and monitoring signals are also ground referenced, simplifying operation of the power supply.

Ground referenced power supplies can not in their native form be “stacked one on top of another” to obtain higher output voltages. All output circuitry is referenced to ground, preventing it from being connected to any other voltage source or reference potential.