



- **STANDARD RACK MOUNTED DESIGN**
- **LOW RIPPLE AND NOISE**
- **5.5 DIGIT FRONT PANEL DIGITAL METERING**
- **REVERSIBLE OUTPUT POLARITY**
- **IEEE-488 INTERFACE**

[www.spellmanhv.com/manuals/225](http://www.spellmanhv.com/manuals/225)

Spellman's Bertan brand of 225 Series high voltage power supplies provide regulated high voltage outputs from 500V to 50kV. An advanced IEEE-488 digital interface, allowing comprehensive power supply control capability is included. The low noise, linear topology employed results in extremely low output ripple specifications. These 15 to 30 watt units are inherently reversible by design, providing either positive or negative output polarity. The 225 is fully arc and short circuit protected. Excellent regulation specifications are featured along with outstanding stability performance.

#### TYPICAL APPLICATIONS

HiPot Testing  
 CRT Testing  
 Electrostatics  
 E Beam Systems  
 General Laboratory Usage

#### SPECIFICATIONS

##### Input Voltage:

115Vac,  $\pm 10\%$ , 50/60 Hertz @ 2 amps  
 230Vac,  $\pm 10\%$ , 50/60 Hertz @ 1 amp  
 Input voltage is switch selectable

##### Output Voltage:

See "model selection" table

##### Output Polarity:

All units are reversible polarity by design

##### Output Current:

See "model selection" table

##### Voltage Regulation:

Line:  $\leq 0.001\%$  of rated output voltage over specified input voltage range  
 Load:  $\leq 0.005\%$  of rated output voltage for a full load change

##### Current Regulation:

Internally set to limit at 105% of rated current at full output voltage. Maximum output current at any other voltage setting must be derated linearly down to 30% of maximum at zero output voltage

##### Ripple:

See "model selection" table

##### Temperature Coefficient:

$\leq 50\text{ppm}/^\circ\text{C}$

##### Stability:

$\leq 0.01\%$ /hour, 0.02% per 8 hours after a 1/2 hour warm up

##### Accuracy:

Current Monitor:  $\pm(0.5\%$  of reading + 0.25% of maximum)  
 Remote Programming:  $\pm(0.1\%$  of setting + 0.05% of maximum)  
 Voltage Monitor:  $\pm(0.1\%$  of reading + 0.05% of maximum)  
 Front Panel Meter: Voltage  $\pm(0.1\%$  of setting + 0.1% of maximum)  
 Current:  $\pm(0.1\%$  of setting + 0.1% of maximum)  
 Front Panel Control:  $\pm(0.1\%$  of setting + 0.05% of maximum)

##### Front Panel Metering and Controls:

5.5 digit metering for voltage and current  
 Power ON/OFF switch  
 High Voltage ON/OFF switch  
 Velocity proportional digital potentiometer and pushbuttons for inputting operational parameters

##### IEEE-488 Interface:

Controllable parameters:  
 Voltage program, voltage limit, current limit, overload response mode and SRQ mode

##### Reportable Parameters:

Voltage monitor, current monitor, limit settings, mode settings, polarity and status information

##### Operating Temperature

$0^\circ\text{C}$  to  $+50^\circ\text{C}$

##### Storage Temperature:

$-40^\circ\text{C}$  to  $+85^\circ\text{C}$

##### Humidity:

20% to 85% RH, non-condensing

##### Input Line Connector:

IEC320 EMI filter/input connector, a detachable line cord is provided

##### Interface Connector:

9 pin "D" connector, a mating connector is provided

##### GPIO Connector:

IEEE-488

##### Output Connector:

A detachable 10 foot (3 meter) long HV cable is provided

**Cooling:**

Convection cooled

**Dimensions**

1-20kV: 19.0" W X 3.5" H X 9.625" D  
(483mm X 89mm X 244mm)  
30-50kV: 19.0" W X 5.25" H X 16.0" D  
(483mm X 133mm X 406mm)

**Weight:**

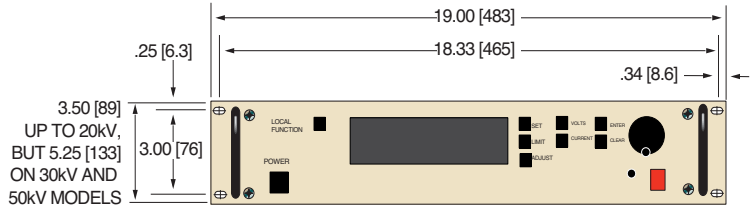
≤20 pounds (9.1kg) up to and including 20kV units,  
≤35 pounds (15.9kg) for 30kV and 50kV units

**Regulatory Approvals:**

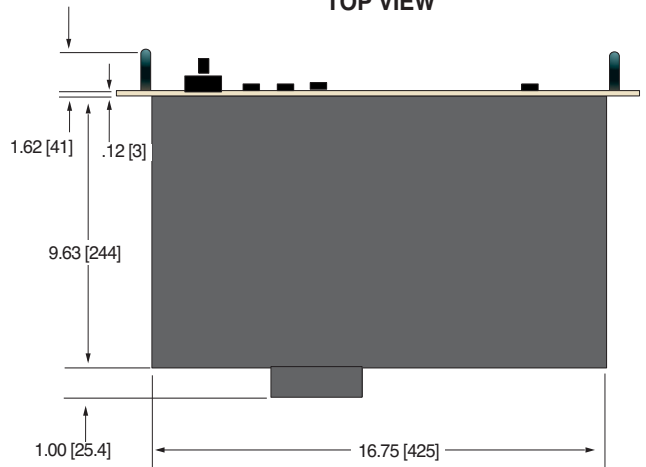
Compliant to 2004/108/EC, the EMC Directive  
and 2006/95/EC, the Low Voltage Directive.

DIMENSIONS: in.[mm]

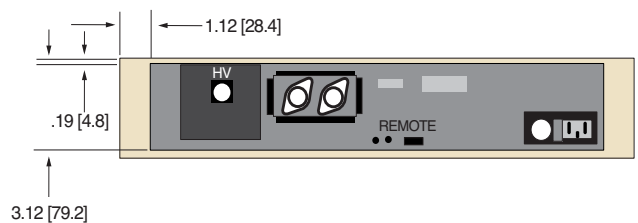
**FRONT VIEW**



**TOP VIEW**



**BACK VIEW**



**MODEL SELECTION TABLE**

225 Series	Voltage	Current	Ripple	Voltage Resolution	Current Resolution
225-0.5R	0 to 500V	0 to 60mA	10mV	100mV	1uA
225-01R	0 to 1kV	0 to 30mA	10mV	100mV	1uA
225-03R	0 to 3kV	0 to 10mA	30mV	100mV	1uA
225-05R	0 to 5kV	0 to 5mA	50mV	100mV	0.1uA
225-10R	0 to 10kV	0 to 2.5mA	100mV	1 volt	0.1uA
225-20R	0 to 20kV	0 to 1mA	300mV	1 volt	0.1uA
225-30R	0 to 30kV	0 to 0.5mA	400mV	1 volt	0.01uA
225-50R	0 to 50kV	0 to 0.3mA	2 volts	1 volt	0.01uA

**INTERFACE CONNECTOR**

PIN	SIGNAL	PARAMETERS
1	Voltage Monitor	0 to 5Vdc = 0 to 100% rated voltage, Zout = 10KΩ
2	n/c	none
3	Enable	TTL "0" disables HV, TTL "1" or open enables HV
4	+5Vdc Reference	+5.0Vdc @ 10mA, maximum
5	Current Monitor	0 to 5Vdc = 0 to 100% rated current, Zout = 10KΩ
6	Voltage Program Input	0 to 5Vdc = 0 to 100% rated voltage, Zin = 1MΩ
7	Analog Ground	Ground
8	Digital Ground	Ground
9	Polarity Indicator	Open collector, 30V @ 25mA, positive = ON

