



- **Compact & Lightweight**
- **Models from 1kV-160kV, 300W, 600W AND 1200W**
- **Universal Input, Power Factor Corrected**
- **Low Cost Modular Design**
- **Standard Digital Interfaces: USB, Ethernet and RS-232**
- **CE Compliant, UL Recognized**

www.spellmanhv.com/manuals/SLM

Spellman's SLM Series of high voltage modules are designed for OEM applications up to 160kV at 1200 watts. Its universal input, small package size and choice of three standard digital interfaces simplifies integrating the SLM into your system design. Models are available in either positive or negative polarity. The SLM is fully arc and short protected. Excellent regulation specifications are provided along with outstanding stability performance.

TYPICAL APPLICATIONS

Capacitor Charging	Electrostatics
HiPot Testing	E Beam Systems
CRT Testing	CW Lasers

FIRMWARE CONFIGURATIONS

STANDARD BASED FEATURES

AOL	Adjustable Overload Trip
AT	Arc Trip
NAD	No Arc Detect
NSS	No Slow Start
PSS	Programmable Slow Start
RFR	Remote Fault Reset
RMI	Remote Mode Indicators
ROV	Remote Overvoltage Adjust

SPECIFICATIONS

Input Voltage:

Power factor corrected input, ≥ 0.98
 100-240Vac, $\pm 10\%$ (90-264Vac):
 47-63Hz @ 4.0A for 300 watt units
 200-240Vac, $\pm 10\%$ (180-264Vac):
 47-63Hz @ 4.0A for 600 watt units
 47-63Hz @ 8.0A for 1200 watt units

Output Voltage:

12 models—1kV to 160kV

Output Polarity:

Negative or positive, specify at time of order

Local Indicators:

Arc, HV On, Temp Error, OVP, I Mode
 Power On, OC, Reg Error

Power:

3 power ranges available—300, 600 and 1200 watts.
 Other power levels available on special order.

Voltage Regulation:

$\leq 0.01\%$ of rated output voltage over specified input voltage range
 $\leq 0.01\%$ of rated output voltage for a full load change

Current Regulation:

$\leq 0.01\%$ of rated output current over specified input voltage range
 $\leq 0.01\%$ of rated output current for a $\pm 100\mu\text{A}$ for a full voltage change

Ripple:

$\leq 0.2\%$ rms of maximum rated voltage, measured with a 10 foot long HV cable

Stability:

$\leq 50\text{ppm/hr}$ after a 2 hour warm up

Temperature Coefficient:

$\leq 100\text{ppm per degree C}$

Environmental:

Temperature Range:
 Operating: 0°C to 40°C
 Storage: -40°C to 85°C
 Humidity:
 20% to 85% RH, non-condensing.

Control Interface

Local Interface:

Potentiometers are provided to adjust voltage and current.

Remote Interface: USB, Ethernet and RS-232 are standard, implemented with 12 bits of resolution. All digital monitors have an accuracy specification of 2%.

Control Software: A Windows graphical user interface example is provided.

HV Control Enable/Interlock:

A dry contact, hardware based interlock is provided for remote mode. In local mode this I/O is the enable.

Monitor Signals:

Voltage and current monitor signals are scaled 0-10Vdc equals 0-100% of full scale, accuracy is 1%.

Dimensions:

300/600 watts:	4.75" H X 6" W X 12" D (120.65mm x 152.4mm x 304.8mm)
1200 watts:	4.75" H X 12" W X 12" D (120.65mm x 304.8mm x 304.8mm)
160kV:	10.5" H X 19" W X 21.5" D (266.7mm x 482.6mm x 546.1mm)

Weight:

300/600 watts:	14 pounds (6.35kg)
1200 watts:	26 pounds (11.8kg)
160kV:	142 pounds (64.4kg)

Cooling:

Forced air

Input Line Connector:

IEC320 cord set with integrated EMI filter

Output Cable:

1-70kV units:

A detachable 10' (3.3m) long shielded HV cable is provided.

160kV units:

R24 connector. Mating HV cable not provided

Regulatory Approvals:

Compliant to 204/108/EC, the EMC Directive and 2006/95/EC, the Low Voltage Directive. UL/CUL recognized, File 227588. RoHS compliant. SLM160*1200 is not UL recognized.

SLM SELECTION TABLE- 300W

300 Watt		
kV	mA	Model
1	300	SLM1*300
3	100	SLM3*300
5	60	SLM5*300
10	30	SLM10*300
15	20	SLM15*300
20	15	SLM20*300
30	10	SLM30*300
40	7.5	SLM40*300
50	6	SLM50*300
60	5	SLM60*300
70	4.28	SLM70*300

*Specify "P" for positive polarity or "N" for negative polarity

SLM SELECTION TABLE- 600W

600 Watt		
kV	mA	Model
1	600	SLM1*600
3	200	SLM3*600
5	120	SLM5*600
10	60	SLM10*600
15	40	SLM15*600
20	30	SLM20*600
30	20	SLM30*600
40	15	SLM40*600
50	12	SLM50*600
60	10	SLM60*600
70	8.56	SLM70*600

*Specify "P" for positive polarity or "N" for negative polarity

SLM SELECTION TABLE- 1200W

1200 Watt		
kV	mA	Model
1	1200	SLM1*1200
3	400	SLM3*1200
5	240	SLM5*1200
10	120	SLM10*1200
15	80	SLM15*1200
20	60	SLM20*1200
30	40	SLM30*1200
40	30	SLM40*1200
50	24	SLM50*1200
60	20	SLM60*1200
70	17.14	SLM70*1200
160	7.5	SLM160*1200

*Specify "P" for positive polarity or "N" for negative polarity

SLM ANALOG INTERFACE – J2 15 PIN MALE D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	Power Supply Fault	Open Collector, 35V @ 10mA Maximum
2	Current Program In	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
3	Voltage Program In	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
4	NC	No Connection
5	Local Voltage Prog.	Multi-turn front panel potentiometer
6	NC	No Connection
7	Local Current Prog.	Multi-turn front panel potentiometer
8	Voltage Monitor	0 to 10V=0 to 100% Rated Output, Zout =4.99k, 1%
9	Signal Ground	Ground
10	Current Monitor	0 to 10V=0 to 100% Rated Output, Zout =4.99k, 1%
11	HV Enable Input	Connect to Pin 12 to HV Enable Supply
12	HV Enable Output	+15V @ Open, ≤15mA @ Closed
13	NC	No Connection
14	HV On Output Signal	Open Collector, 35V @10mA Maximum
15	Spare	No Connection

RS-232 DIGITAL INTERFACE – J3 9 PIN FEMALE D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	NC	No Connection
2	TX out	Transmit Data
3	RX in	Receive Data
4	NC	No Connection
5	SGND	Ground
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection

USB DIGITAL INTERFACE – J4 4 PIN USB “B” CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	VBUS	+5 Vdc
2	D-	Data -
3	D+	Data +
4	GND	Ground

ETHERNET DIGITAL INTERFACE – J5 8 PIN RJ45 CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	TX+	Transmit Data +
2	TX-	Transmit Data -
3	RX+	Receive Data +
4	NC	No Connection
5	NC	No Connection
6	RX-	Receive Data -
7	NC	No Connection
8	NC	No Connection

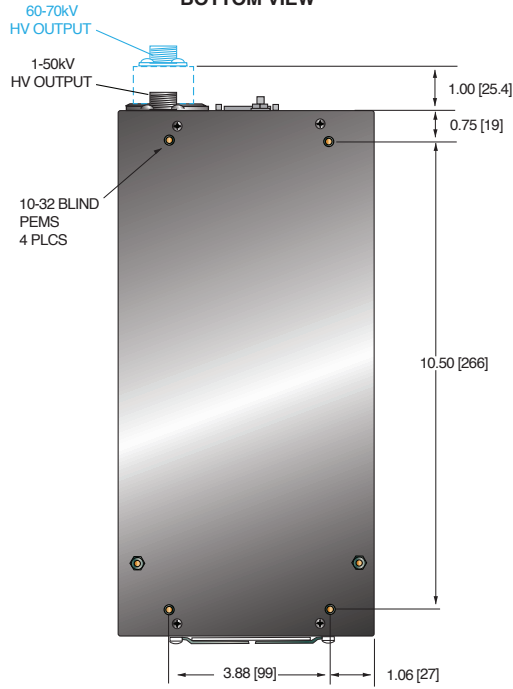
R24 HV CONNECTOR PINOUT J6 HIGH VOLTAGE OUTPUT (160kV)

PIN	OUTPUT CONNECTION
C (common)	High Voltage Output
S (small)	High Voltage Output
L (large)	High Voltage Output

DIMENSIONS: in.[mm]

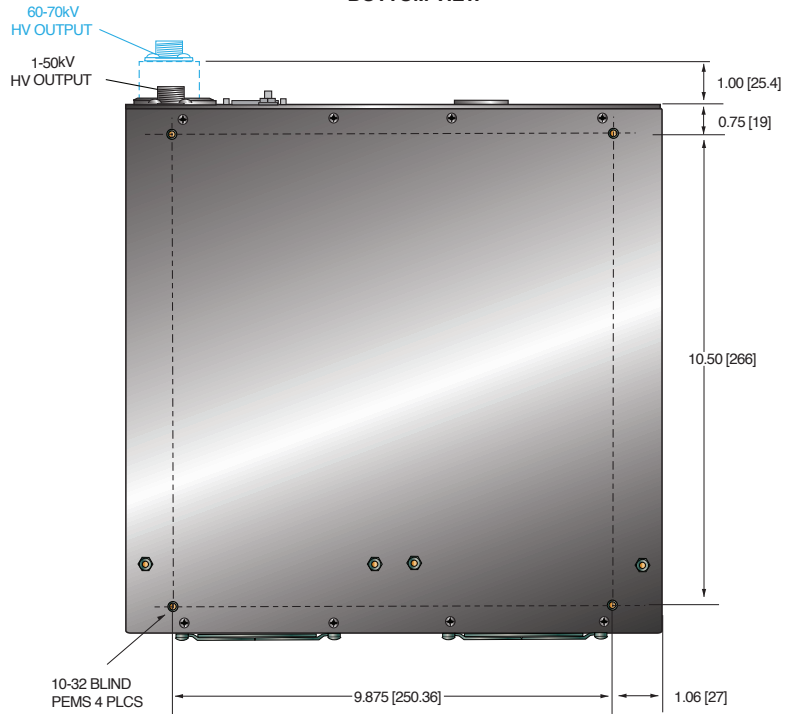
300/600 Watt

BOTTOM VIEW

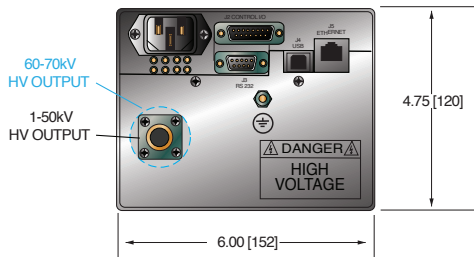


1200 Watt

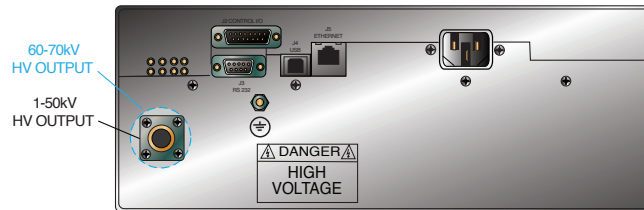
BOTTOM VIEW



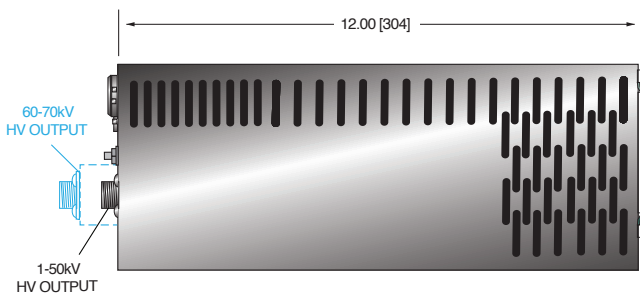
FRONT VIEW



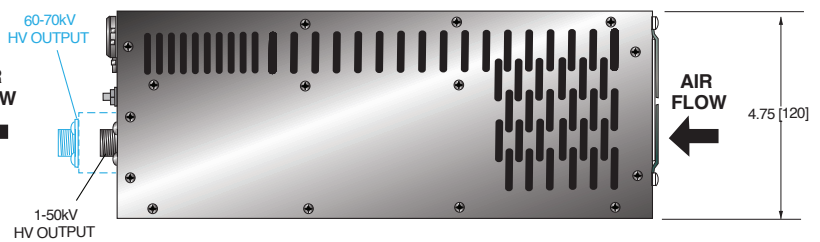
FRONT VIEW



SIDE VIEW



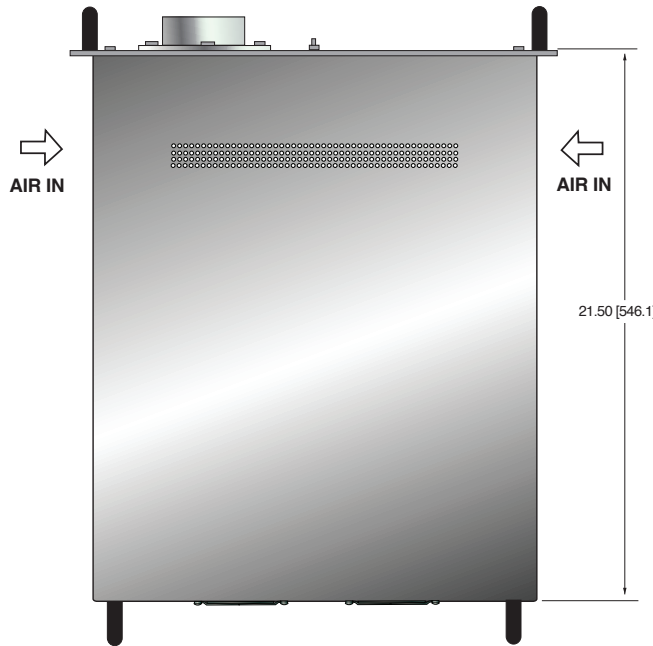
SIDE VIEW



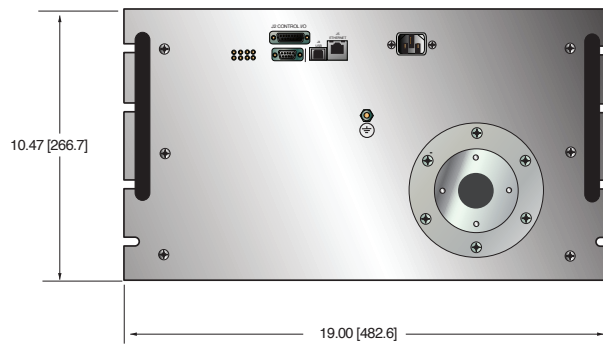
DIMENSIONS: in.[mm]

160kV

TOP VIEW



FRONT VIEW



SIDE VIEW

