



Spellman's SL Series of high voltage power supplies are designed to meet uncompromising performance standards in a minimum of space. Their circuitry includes a resonant high frequency inverter with proprietary control which provides fault-free operation in extreme transient and arcing environments with greater than 85% efficiency. These full featured supplies are available in a wide range of outputs with many options.

TYPICAL APPLICATIONS

Analytical X-ray	Capacitor Charging
CPT/CRT Testing	Hipot Testing
Electrostatics	General Laboratory
E-Beam Systems	CW Lasers

OPTIONS

See page 4 for options and descriptions

SPECIFICATIONS

Status Indicators:

Voltage and Current Control Mode, Interlock Open and Closed, High Voltage Inhibit, Overcurrent and Overvoltage, Arc, Regulation Error, Overtemperature, Over Power (Optional).

Input:

115Vac or 220Vac \pm 10%, 50/60Hz. Specify with order. 1200W model available in 200/220Vac only.

Output:

Models available from 1kV to 130kV. Each model is available in positive, negative or reversible polarity output.

Front Panel Controls:

Voltage and current are continuously adjustable by ten-turn potentiometers with lockable counting dials, ON/OFF circuit breaker/lamp, high voltage ON switch/indicator and high voltage OFF switch/indicator.

Voltage Regulation:

Load: 0.005% of maximum voltage +500mV for full load change.
Line: \pm 0.005% of full voltage +500mV over specified input range

- **Very Compact and Lightweight**
- **Low EMI and RFI**
- **Voltage Range from 1kV to 130kV**
- **Reversible Polarity Standard up to 6kV**
- **System Status Indicators**
- **Extensive Analog and Digital Interface**
- **Arc Quench/Arc Count/Arc Trip**
- **OEM Customization Available**

www.spellmanhv.com/manuals/SL

Current Regulation:

Load: 0.01% of maximum current \pm 100 μ A for full voltage change.

Line: \pm 0.005% of maximum current for a \pm 10% input line change.

Ripple:

0.1% p-p +1Vrms.

Temperature Coefficient:

100ppm/ $^{\circ}$ C voltage or current regulated. Higher stability is available on special order.

Environmental:

Temperature Range:

Operating: 0 $^{\circ}$ C to 50 $^{\circ}$ C.

Storage: -40 $^{\circ}$ C to 85 $^{\circ}$ C.

Humidity:

10 to 90% relative humidity, non-condensing

Stability:

100ppm/hour after 1/2 hour warm-up for both voltage and current regulation.

Metering:

Digital voltage and current meters, 3 $\frac{1}{2}$ digit \pm 1 least significant digit.

Output Cable:

10' (3.05m) of shielded high voltage cable removable at the rear panel.

AC Line Input Cable:

10 to 300W: IEC320 Cord Set, 6' (1.83m)

600 to 1200W: 3-conductor, 12AWG, 6' (1.83m) cable permanently attached to unit.

Dimensions:

10W – 300W: 1 $\frac{3}{4}$ "H(1U) x 19"W x 19"D** (4.45cm x 48.3cm x 48.3cm).

600W – 1200W: 3 $\frac{1}{2}$ "H(2U) x 19"W x 19"D** (8.9cm x 48.3cm x 48.3cm).

**Depth becomes 24" (60.7cm) for 80 to 130kV ranges.

Weight:

17 to 30lbs (7.7 to 14kg) depending on model.

Regulatory Approvals:

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



SL SELECTION TABLE- 10W, 30W, 60W 1.75" (1U)

Table with 7 columns: kV, mA, Model, mA, Model, mA, Model. Rows include models like SL1PN10, SL2PN10, SL3PN10, SL6PN10, SL8PN10, SL10*10, SL15*10, SL20*10, SL30*10, SL40*10, SL50*10, SL60*10, SL70*10, SL80*10, SL100*10, SL120*10, SL130*10.

*Specify "P" for positive, "N" for negative, or "PN" for reversible polarity. Higher voltage models available on special order.

SL SELECTION TABLE- 150W, 300W 1.75" (1U)

Table with 5 columns: kV, mA, Model, mA, Model. Rows include models like SL1PN150, SL2PN150, SL3PN150, SL6PN150, SL8PN150, SL10*150, SL15*150, SL20*150, SL30*150, SL40*150, SL50*150, SL60*150, SL70*150, SL80*150, SL100*150, SL120*150, SL130*150.

*Specify "P" for positive, "N" for negative, or "PN" for reversible polarity. Higher voltage models available on special order.

SL SELECTION TABLE- 600W, 1200W 3.50" (2U)

Table with 5 columns: kV, mA, Model, mA, Model. Rows include models like SL1PN600, SL2PN600, SL3PN600, SL6PN600, SL8PN600, SL10*600, SL15*600, SL20*600, SL30*600, SL40*600, SL50*600, SL60*600, SL70*600, SL80*600, SL100*600, SL120*600, SL130*600.

*Specify "P" for positive, "N" for negative, or "PN" for reversible polarity. Higher voltage models available on special order.

SL TERMINAL BLOCK 26 PIN

Table with 3 columns: PIN, SIGNAL, SIGNAL PARAMETERS. Rows include signals like Power Supply Common, External Inhibit, External Interlock, External Interlock Return, Current Monitor, kV Test Point, +10Vdc Reference, Remote Current Program In, Local Current Program Out, Remote Voltage Program In, Local Voltage Program Out, Power Monitor, Remote Power Program In, Local HV Off Out, HV Off, Remote HV On, Remote HV Off Indicator, Remote HV On Indicator, Remote Voltage Mode, Remote Current Mode, Remote Power Mode, Remote PS Fault, +15V Output, Power Supply Common, Spare, Shield Return.

How To Order:

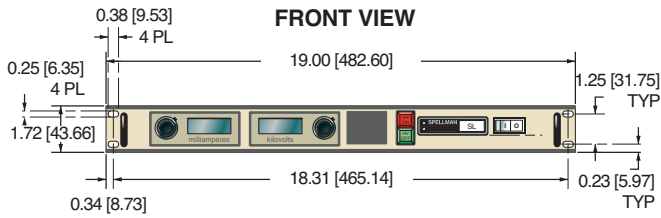
Sample model number: SL80PN1200/NSS/DPM4
SL series unit, 80kV maximum output voltage, reversible polarity output, 1200 watts, no slow start, 4.5 digit panel meters

There may be some restrictions on multiple option combinations. Please contact our Sales department for more details.

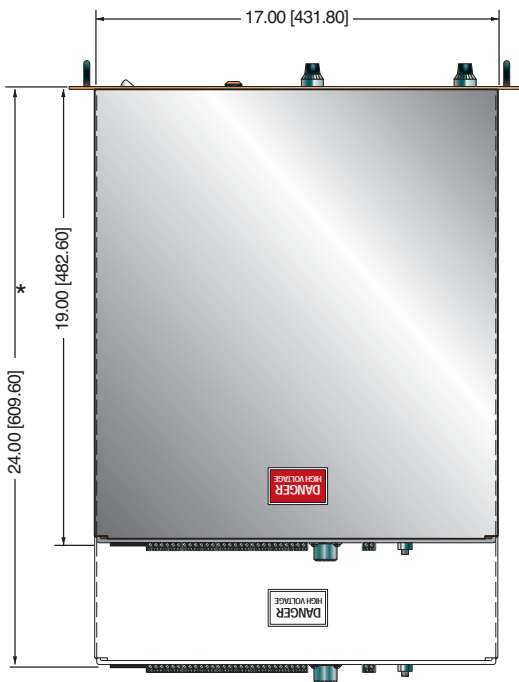


DIMENSIONS: in.[mm]

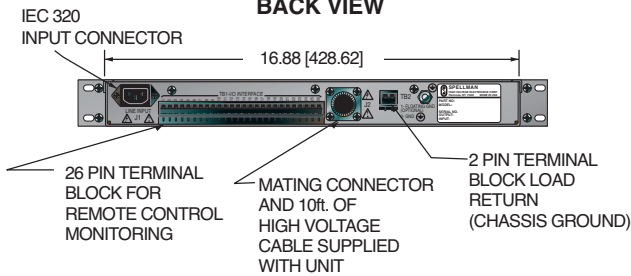
10W-300W



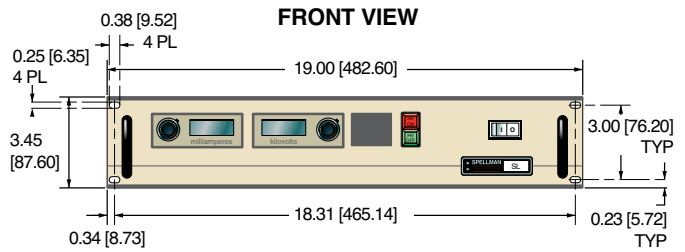
TOP VIEW



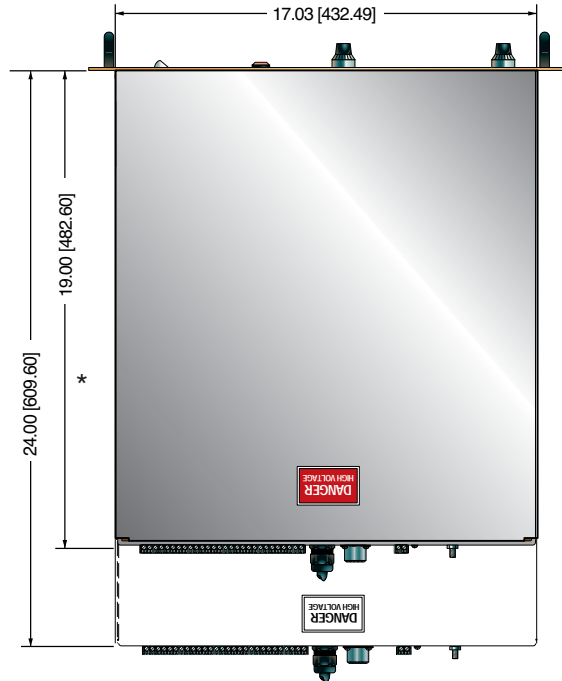
BACK VIEW



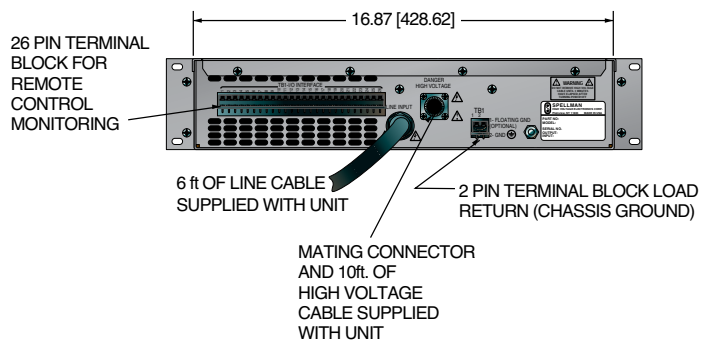
600W-1200W



TOP VIEW



BACK VIEW



* Depth becomes 24" [609.60] for 80kV to 130kV range.



SL SERIES OPTIONS**AOL** *Adjustable Overload Trip*

A control board jumper is moved to make the power supply shut down if it ever operates in current mode. This allows the user to set the current programming level as a trip point that will turn the power supply off with an Over Current fault if it ever tries to operate in Current Mode.

APT *Adjustable Power Trip*

A third control loop is installed in the power supply, a power loop. This power loop uses an analog multiplier chip to multiply the voltage and current feedback signals to create a power feedback signal. Programming and feedback scaling is 0-10Vdc = 0-100% of rated power. The circuit is configured to trip the power supply off with an Over Power fault if the power loop ever tries to regulate.

AT *Arc Trip*

A control board jumper is moved such that the first arc sensed will shut the power supply off with an ARC fault.

BPM *Bipolar Master***BPS** *Bipolar Slave*

This option configures two identical but opposite polarity units to function as a single tracking bipolar supply. The voltage feedback of the master (positive unit) is provided to the voltage programming input of the slave (negative unit).

CMS *Current Mode Select*

A front panel switch is provided to allow the power supply to either regulate in current mode or create an over current fault when operated in current mode, which will shut down the supply. This is basically a switch selectable AOL option.

CPC *Constant Power Control*

Identical to the APT Option with the exception the power supply will run and regulate when the power loop becomes active.

DPM4 *Digital Panel Meter, 4.5 digits*

The standard 3.5 digit front panel meters are replaced with 4.5 digit panel meters.

EFR *External Fault Relay*

A set of relay contacts are provided via the rear panel interface that will change state if the power supply shuts down due to a fault condition.

FCV *Fine Control Voltage*

This option adds a second potentiometer to the front panel of the unit. This allows for a finer local adjustment of the output voltage setting.

FG *Floating Ground*

All the analog returns inside the power supply are isolated from chassis and brought to one point on the rear panel. Any current that flows out of the power supply via the HV cable/connector on the high side must return back to the multiplier via the load return on the low side. With only one path to flow through on the low side, a current meter can be inserted in series and a safe ground referenced measurement can be made of the actual high voltage output current.

FGLL *Floating Ground Low Leakage*

Identical functionality as the FG Option but a shield is placed around the high voltage multiplier to capture any leakage current inside the power supply and return it to the top of the current sense resistor. This negates any internal leakage currents from effecting measurements being made.

IO *Instant On*

A jumper is placed between TB1-15 and TB1-16 on the rear panel, causing the power supply to automatically toggle into HV ON when ever the line voltage is applied.

LL(X) *Lead Length*

Extra long high voltage output cable. 20, 40, 60 and 100 feet are standard lengths.

LR *Low Ripple*

Done on a case by case basis, the standard unit is evaluated and modifications are done to improve the output ripple to 0.05% peak to peak. The operating frequency might be increased, or additional filtering may be added to the HV multiplier.

NAD *No Arc Detect*

This option removes the arc intervention circuitry from the power supply. Care must be exercised when using this option as damage to the HV multiplier could occur.

NSS *No Slow Start*

The standard 6 second long linear ramp of output voltage is removed allowing the high voltage to "step" to its set point when enabled.

PN *Positive/Negative*

Reversible polarity option. Units that are not inherently reversible by design (10kV to 130kV) can have their output polarity reversed by the process of exchanging the high voltage multiplier section.

RFR *Remote Fault Reset*

This option provides the ability to reset any power supply faults that might occur via toggling a signal on the rear panel interface.

ROV *Remote Over Voltage*

The programming signal for the over voltage comparator circuit is made available to the customer remotely, allowing the power supply to be set to trip the OVP circuit anywhere from 0 -110% of rated output voltage.

SL *Slides*

Industry standard rack mounted slides are installed on the power supply.

SS(X) *Slow Start(X)*

The standard slow start is modified to provide a time of (X) seconds. Time frames of 0.1 seconds to 120 seconds can be accommodated.

There may be some restrictions on multiple option combinations. Please contact our Sales department for more details.