



- **160kV - 360kV Outputs**
- **Low Ripple**
- **High Stability**
- **Overcurrent, Overvoltage and Arc Protection**
- **Arc Detect**
- **Lightweight, Compact Size**
- **OEM Customization Available**

www.spellmanhv.com/manuals/SLS

The SLS series of high voltage power supplies provide up to 2000 watts of power with voltage outputs ranging from 160kV to 360kV. These power supplies utilize high frequency resonant inverters with proprietary controls for reliable operation in extreme environments. The high voltage multiplier unit is built with a hybrid design of solid encapsulation and air, thus reducing its overall size. Comprised of 20kV interlocking wafers, the multiplier unit offers flexible building blocks for many different output configurations.

TYPICAL APPLICATIONS

Ion Implantation
Particle Accelerators
Electron Guns

OPTIONS

eSL Ethernet Connectivity/VFD Front Panel

SPECIFICATIONS

Input Voltage:

Standard: 220Vac \pm 10%, 50/60Hz @ 8A/phase, three phase
Optional: 200Vac \pm 10%, 50/60Hz @ 8.9A/phase, three phase

Output Voltage Range:

Models available from 160kV to 360kV and up to 2000W. Each model is available with positive or negative polarity outputs.

Voltage Regulation:

Better than 0.05% for specified line variations and load variations.

Ripple:

0.1% p-p of maximum output voltage.

Remote Voltage Control:

0 to +10V for 0 to maximum voltage. Accuracy and repeatability: 1% of maximum rating.

Remote Current Control:

0 to +10V for 0 to maximum voltage. Accuracy and repeatability: 1% of maximum rating.

Voltage Monitor:

0 to 10V equivalent to rated voltage. Accuracy, 1% reading.

Current Monitor:

0 to 10V equivalent to rated current. Accuracy, 1% reading.

Stability:

0.05% per hour after 1/2 hour warm-up.
0.05% per 8 hours.

Slow Start:

Slow start times: 6 seconds standard.

Temperature Coefficient:

0.01% per degrees C.

Protection:

Overcurrent, Overvoltage, Arc protection, Overtemperature.

Arc Detect:

If 8 arcs occur in a 10 second, non-synchronous time window, the supply reverts to the Power Down Mode with an ARC fault displayed on the front panel default diagnostic display.

Environmental:

Temperature Range:
Operating: 0°C to 40°C
Storage: -20°C to 85°C
Humidity:
10% to 70%, non-condensing.

Dimensions:

Inverter Driver Chassis:
3.50" (2U) H x 19.0" W x 19.0" D
(8.9cm x 48.3cm x 48.3cm)
Multiplier Unit:
See page 3.

Distance from Stack to Driver:

2.5 meters \pm 0.1 meter maximum.

Signal Connector:

25 pin, male D connector, J3.

Metering:

Front panel, 3.5 digit, digital voltage and current meters.

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.

Front Panel Status Indicators:

- Voltage Control Mode
- Current Control Mode
- Interlock Open
- Interlock Closed
- High Voltage Inhibit
- Regulation Error
- Overtemperature
- Overpower (optional)
- Overcurrent
- Overvoltage
- Arc

Regulatory Approvals:

RoHS compliant

Electronic Component (Power Source)

SLS series is intended for installation as a component of a system.

It is designed to meet CE standards, with conditions of acceptance often being: customer provided enclosure mounting, EMC filtering, and appropriate protection, and isolation devices. The SLS series is not intended to be operated by end users as a stand-alone device. The SLS series power supply can only be fully assessed when installed within a system, and as a component part within that system.

Corona Dome Terminations:

The SLS Series of "stack" configured high voltage power supplies come in a various output voltages and different physical configurations. Appropriate corona relief is required for these units to operate at maximum output voltage. Frequently users will provide the corona relief needed so Spellman will provide stack assemblies that by themselves will not be able to operate at maximum output voltage corona free. Please be certain to discuss your requirements with Spellman to be assured you get a stack assembly in the physical configuration you require for your application. The optional K941 Toroid (5" x 20") should be considered if customer corona relief will not be provided.



360kV Stack
shown with
optional
K941 Toroid

SLS SELECTION TABLE

MAXIMUM RATING		MODEL NUMBER
kV	mA	
160	12.5	SLS160*2000
200	10.0	SLS200*2000
260	7.7	SLS260*2000
300	6.6	SLS300*2000
360	5.5	SLS360*2000

*Specify "P" for positive polarity or "N" for negative polarity
Other combinations of voltage and current are available.

SLS I/O INTERFACE CONNECTOR 25 PIN

PIN	SIGNAL
1	Power Supply Common
2	External Inhibit
3	External Interlock
4	External Interlock Return
5	Current Monitor
6	Voltage Monitor
7	+10V Reference
8	Remote Current Program In
9	Local Current Program Out
10	Remote Voltage Program In
11	Local Voltage Program Out
12	Optional EFR (common)
13	Optional EFR (normally closed)
14	Local HV OFF Out
15	HV OFF
16	Remote HV ON
17	Remote HV OFF Indicator
18	Remote HV ON Indicator
19	Remote Voltage Mode
20	Remote Current Mode
21	Spare
22	Remote PS Fault
23	+15V Output
24	Power Supply Common
25	Shield Return

eSL OPTION



The eSL Option provides a vacuum fluorescent front panel display and Ethernet connectivity. Using the front panel local controls the main menu has the following features:

Local/Remote Control

Allows operation from either the local front panel or remotely via the Ethernet Category 5 connector.

Features Menu

Allows control over Adjustable Overload Trip and Slow Start features.

Tutorial Menu

Provides information on how to use the local front panel interface.

Diagnostics Menu

Provides information on the revisions of the hardware, firmware and IP address. Additionally the Diagnostics Menu provides information on the status of the internal low voltage housekeeping power supply voltages.

eSL Option power supplies can still be fully controlled via the SL2KW's comprehensive remote analog interface, so these units are fully backwards compatible with standard SL2KW power supplies.

Typical Front Panel Screens

Model Number



Standby



HV ON

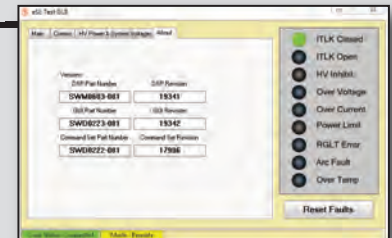


Digital Interface

A front panel accessible Category 5 connector provides Ethernet connectivity. Spellman provides a basic demo GUI for convenience of the user, but most customers implement their own software.

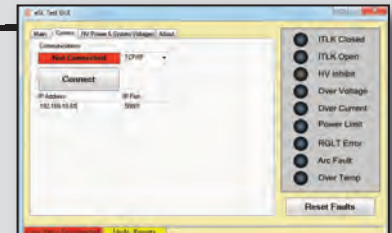
About Screen

DSP part number, DSP revision, GUI part number, GUI revision, Command set part number, Command set revision



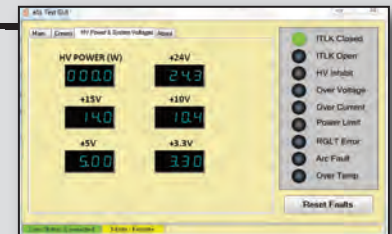
Coms Screen

Communications, IP address, IP port



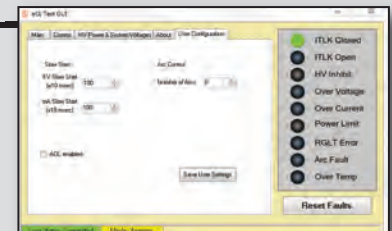
HV Power and System Voltages Screen

HV power (watts) +24V, +15V, +10V, +5V, +3.3V



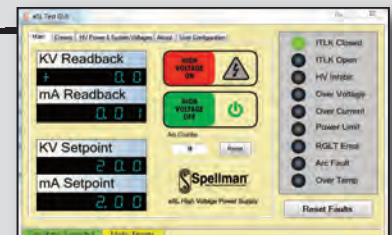
User Configuration Screen

Slow Start - kV, Slow Start - mA, Adjustable Over Load (AOL), Arc Control, Fault Indicators

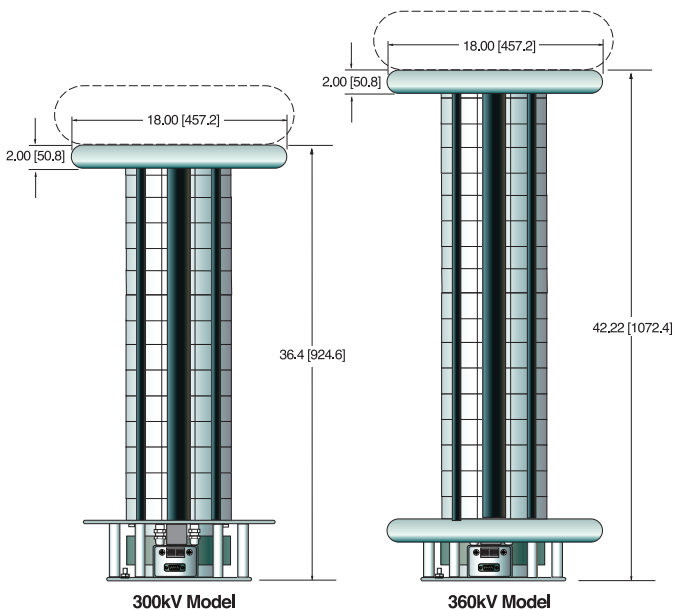
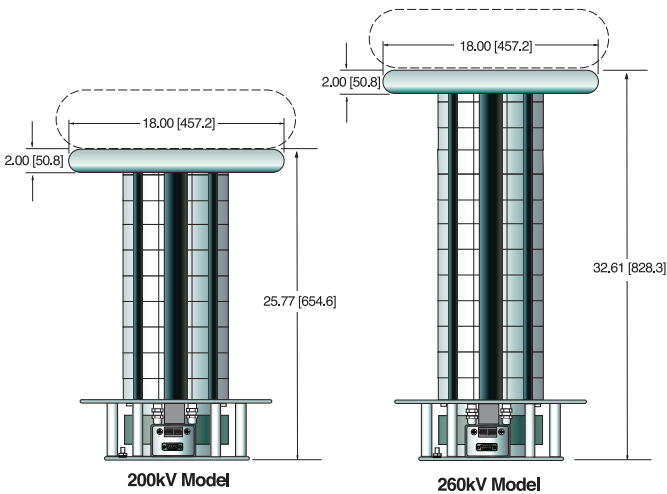
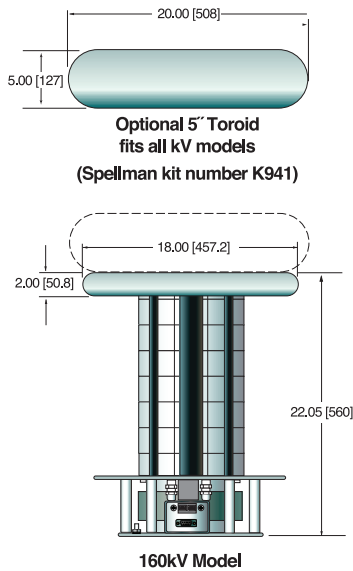


Main Screen

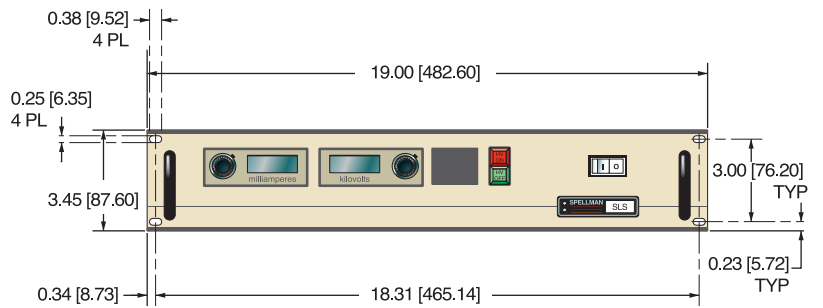
kV Setpoint, kV Readback, mA Setpoint, mA Readback, HV OFF Button, HV ON Button, Arc Counter, System Diagnostics, Reset Faults Button



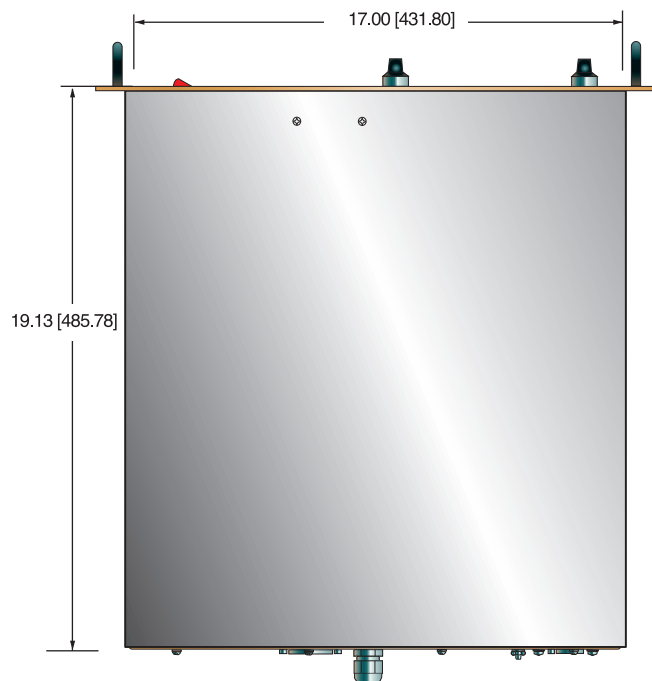
DIMENSIONS: in.[mm]



FRONT VIEW



TOP VIEW



BACK VIEW

