

APPLICATION SPECIFIC

PHOTO MULTIPLIER TUBES

SOLID STATE DETECTORS

INDUSTRIAL LASERS

SPECTRAL SOURCE LAMPS

ION BEAM ETCHING

IMAGE INTENSIFIERS

ELECTROSTATIC PRINTING

NUCLEAR INSTRUMENTS

MICRO-OPTICS

MASS SPECTROMETRY

ELECTRON AND ION BEAM

ELECTROPHORESIS

CABLE TESTING

DETECTOR ARRAYS

E-BEAM SYSTEMS

CAPACITOR CHARGING SYSTEMS

ELECTROSTATIC LENSES

LABORATORY APPLICATIONS

ION SOURCE

www.spellmanhv.com

PRODUCT SPECIFIER



CCM CAPACITOR CHARGING APPLICATIONS

Up to 4000V

Input: 180-264Vac
Ripple: <0.2% p-p
Dims.: 5.81"H x 5.8"W x 14"D
 148mm x 147mm x 356mm

- **COMPACT & LIGHTWEIGHT PACKAGE**
- **POWER FACTOR CORRECTED INPUT**
- **LOW COST MODULAR OEM PLATFORM**
- **RUGGED IGBT INVERTER DESIGN**
- **AUXILIARY +24VDC @ 2.2 AMP OUTPUT PROVIDED**

Spellman's CCM capacitor charging module is designed to provide 3100 joules per second at an output voltage up to 4000 Volts. The power factor corrected AC input, small package size and comprehensive analog interface simplifies integrating the CCM into your OEM system design. Available in either positive or negative polarity.



EBM E-BEAM FOR SEM APPLICATIONS

0-30kV

Input: 24Vdc ±5%
Load Reg.: (Accelerator) <±100ppm
Line Reg.: (Accelerator) <±100ppm
Ripple: (Accelerator) <10ppm p-p
Dims.: 4.17"H x 10.83"W x 10.43"D
 106mm x 275mm x 265mm

- **TRIODE SUPPLY FOR E-BEAM COLUMNS**
- **SINGLE INTEGRATED OEM MODULE**
- **ARC AND SHORT CIRCUIT PROTECTION**
- **ROHS COMPLIANT**
- **UL LISTED AND CE MARKED**

Spellman's EBM High Voltage supply for E-Beam Columns in Scanning Electron Microscopes provides the acceleration, bias and filament sources in one compact OEM package. Our proprietary high voltage packaging and encapsulation technology gives dramatic improvements to the size, cost and performance when compared to other SEM power supply offerings. The EBM provides a highly regulated, low noise, ultra stable accelerator supply.



EGM E-BEAM FOR SEM APPLICATIONS

50kV

Input: 90-260Vac
Load Reg.: (Beam) <10ppm
Line Reg.: (Beam) <10ppm
Ripple: <2.5ppm
Dims.: 2X 5.24"H x 19"W x 18.43"D
 133mm x 483mm x 468mm

- **LOCAL OR REMOTE CONTROL OF BEAM ENERGY, FILAMENT POWER AND EMISSION CURRENT**
- **INTEGRATED FLOATING FILAMENT SUPPLY**
- **ACTIVE BIAS SYSTEM**
- **HIGH STABILITY LESS THAN 2.5 PPM**

Spellman's precision Electron Gun Power Supply is designed to achieve extremely high stability and low ripple. The EGM 50 incorporates an integral floating filament supply and active bias. Full control via RS232 interface reduces end-product development time and eases system integration. Safe, ground level local and remote control of beam energy, filament power and emission current provides optimum operational efficiency.



FIBX FOCUSED ION BEAM APPLICATIONS

0-45kV

Input: 105-240Vac
Load Reg.: (Accelerator) ±0.01%
Line Reg.: (Accelerator) 100mV
Ripple: 200mV p-p
Dims.: 10.5"H x 19"W x 21"D
 267mm x 483mm x 533mm

- **INTEGRATED SINGLE CHASSIS SOLUTION**
- **HIGH STABILITY, VERY LOW RIPPLE**
- **CORONA FREE OPERATION**
- **OPTICALLY ISOLATED DIGITAL INTERFACE**
- **CE MARKED, UL & SEMI COMPLIANT**

Spellman's FIBX power supply is an integrated multiple output high voltage power supply specifically designed for focused ion beam applications such as transmission and SEM; semiconductor analysis, milling and repair; disc drive head trimming, ion beam etching and focused ion-beam lithography.

A modular design approach allows easy configuration in a common rack mounted 6U chassis assembly. Interface, logic and control circuitry utilizes surface mount technology.



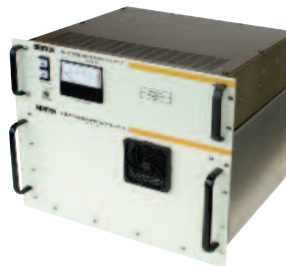
VS100 PRECISION E-BEAM APPLICATIONS

0-100kV

Input: 220Vac ±10%
Load Reg.: ≤20V
Line Reg.: ±0.001%
Ripple: ≤75mV p-p
Dims.: Control Unit
 5.25"H x 19"W x 15.3"D
 133mm x 483mm x 384mm
 HV Unit
 10.25"H x 19"W x 27"D
 267mm x 483mm x 559mm

- **LOW/HIGH 10µA/100µA OUTPUT CURRENT SELECTION**
- **LESS THAN 75 MV OF RIPPLE**
- **EXCELLENT REGULATION AND STABILITY**
- **OIL FREE/SOLID ENCAPSULATED DESIGN**

The Bertan VS100 high voltage power supply was specifically designed for precision electron beam applications. Ultra low ripple and excellent stability specifications make it ideal for use in semiconductor nano-lithography, micro-optics and development mask work applications. The solid encapsulated high voltage section eliminates any user maintenance issues. The unit is fully overload, arc and short circuit protected.



ECHUCK ELECTROSTATIC CHUCK APPLICATIONS

0-100kV

Input: 24Vdc and 48Vdc
Load Reg.: ≤0.001%
Line Reg.: ≤0.001%
Ripple: as low as 10mV
Dims.: 6.6"H x 2.25"W x 9.5"D
 168mm x 57mm x 241mm

- **30W TO 75W PER CHANNEL**
- **INPUT VOLTAGE: 48VDC OR 24VDC**
- **REVERSIBLE POLARITY**
- **DUAL OUTPUT**
- **FLOATING OUTPUT VOLTAGE**

ESC Series electrostatic chuck power supplies provide steady and accurate bi-polar voltages required for electrostatic wafer processing applications. These well regulated supplies effectively secure the chuck during long hold cycles. Additional features include a true floating output with an independent center-tap point and an internal interlock circuit which shuts down power if faults occur.



CZE ELECTROPHORESIS

0–30kV

Input: CZE1000R 115 or 220Vac
±10%
CZE2000 24Vdc ±10%

Load Reg.: 0.01%

Line Reg.: 0.01%

Ripple: 0.1% p-p

Dims.: CZE1000R (shown)
5.25"H x 19"W x 17"D
133mm x 483mm x 432mm
CZE2000
3.5"H x 5"W x 10"D
89mm x 127mm x 254mm



CZE1000R

- **0-300µA LOAD CURRENT, PROGRAMMABLE**
- **AUTO POLARITY REVERSING**
- **LOW STORED ENERGY**
- **DIGITAL ON/OFF CONTROL**
- **OEM CUSTOMIZATION AVAILABLE**

Spellman's CZE2000 and CZE1000R high voltage power supplies are designed to meet the requirements of applications requiring a hot switched reversible output voltage. The dc output voltage and current are continuously adjustable from 0 to 30kV and 0 to 300µA. Output polarity is reversible on command.

DGM IMAGE INTENSIFIER APPLICATIONS

Up to 40kV

Input: +15Vdc and -15Vdc

Ripple: See Data Sheet

Dims.: 6.8"H x 4.68"W x 1.37"D
173mm x 119mm x 35mm



- **BLANKING**
- **THERMAL SHUT DOWN**
- **CURRENT LIMITS**
- **ARC PROTECTION**
- **OEM CUSTOMIZATION AVAILABLE**

Spellman continues to set the standards for high voltage power conversion technology with its DGM high voltage power supply for Image Intensifier applications. The DGM series can be adapted to suit specific requirements with a wide selection of multiple output voltages and power capabilities in a compact package, making it perfect for the OEM user.

MCP MASS SPECTROMETRY

100V–3kV

Input: 24Vdc ±0.5V

Load Reg.: ≤0.1%

Line Reg.: ≤0.01%

Ripple: ≤0.1% V p-p

Dims.: 1.49"H x 4.09"W x 6.73"D
38mm x 104mm x 171mm



- **FLOATING, PROGRAMMABLE OUTPUT**
- **OUTPUT ISOLATED TO 16KV**
- **WELL REGULATED, LOW RIPPLE**
- **OUTPUT VOLTAGE MONITOR**
- **ARC AND SHORT CIRCUIT PROTECTED**

Spellman's MCP Module is a well-regulated, high performance DC-DC converter featuring a floating 3kV output, isolated to 16kV. The MCP low output ripple specification makes it ideal for use with detectors in Mass Spectrometry applications like: Electron Multipliers (EM's), Microchannel Plates Detectors (MCP's) and Channel Electron Multipliers.

ML430 MASS SPECTROMETRY

430V

Input: 24Vdc ±0.5V

Load Reg.: ≤0.1%

Line Reg.: ≤0.01%

Ripple: ≤0.1% V p-p

Dims.: .98"H x 2.36"W x 2.36"D
25mm x 60mm x 60mm



- **HIGH VOLTAGE LENS POWER SUPPLY**
- **DUAL POSITIVE AND NEGATIVE OUTPUTS**
- **LOW COST, AIR INSULATED DESIGN**
- **ARC AND SHORT CIRCUIT PROTECTED**
- **REMOTE ENABLE CONTROL PROVIDED**

Spellman's ML430 power supply module is a compact, low cost, SMT based high performance module that is printed circuit board mountable. Its dual output is ideal for amplifier driver requirements along with electrostatic lenses, deflectors and biasing supplies. This voltage regulated, current limited, fixed, dual output unit provides up to 25mA of load current.

ML1350 MASS SPECTROMETRY

Up to 1350V

Input: 24Vdc ±1.2V

Load Reg.: +3%

Line Reg.: ±1V

Ripple: ≤0.1% V p-p

Dims.: .98"H x 4.33"W x 3.15"D
25mm x 110mm x 80mm



- **QUAD OUTPUT**
- **LOW COST, AIR INSULATED DESIGN**
- **ARC AND SHORT CIRCUIT PROTECTED**
- **REMOTE ENABLE CONTROL PROVIDED**
- **UL APPROVED TO UL61010-1**

Spellman's ML1350 power supply module has been designed specifically to drive quadrupoles used in mass spectrometry. This compact, low cost, SMT based high performance module is printed circuit board mountable. This quad output supply is ideal for quadrupole drivers and electrostatic lenses. This voltage regulated, current limited, fixed quad output unit provides up to 15mA of load current from each output.

MX2.5 MASS SPECTROMETRY

100V

Input: 24Vdc ±0.5V

Load Reg.: 0.05%

Line Reg.: 0.05%

Ripple: ≤0.02% V p-p

Dims.: 1.18"H x 2.36"W x 4.72"D
30mm x 60mm x 120mm



- **HOT SWITCHABLE POLARITY REVERSIBLE**
- **POLARITY REVERSAL WITHIN 300MS**
- **REMOTE HV INHIBIT**
- **ARC AND SHORT CIRCUIT PROTECTED**

Spellman's MX2.5 is a well-regulated PCB mounted DC-DC converter featuring a "hot switchable" polarity reversal capability. The MX's low ripple makes it ideal for Mass Spectrometry applications; security detection systems, Dynodes, sample ionization as well as capillary electrophoresis and electrostatic printing applications. The MX2.5 is rated at 2.5kV @60uA and features a logic signal input to control output polarity reversal.

MX8 PLUS MASS SPECTROMETRY

0–8kV

Input: 24Vdc ±10%

Load Reg.: <0.1%

Line Reg.: ≤±0.1%

Ripple: <0.1% V p-p

Dims.: 1.48"H x 3.23"W x 9.45"D
37.6mm x 82mm x 240mm



- **±8KV 25MS POLARITY REVERSING SPEED**
- **HIGH STABILITY**
- **LOW RIPPLE AND NOISE**
- **HIGH VOLTAGE INHIBIT CONTROL**
- **ROHS COMPLIANT**

Spellman's RoHS compliant MX8 Plus is a well-regulated supply featuring a 25ms "hot switchable" polarity reversing capability. The MX8 Plus's low ripple specification makes it the ideal choice for mass spectrometry applications; especially security detection systems, dynodes, sample ionisation as well as capillary electrophoresis and electrostatic printing applications.

MX10 MASS SPECTROMETRY

200V–10kV

Input: 24Vdc ±1V

Load Reg.: 0.1%

Line Reg.: 0.1%

Ripple: ≤0.005% V p-p

Dims.: 1.63"H x 6.61"W x 4.53"D
41.5mm x 168mm x 115mm



- **HOT SWITCHABLE POLARITY REVERSIBLE**
- **WELL REGULATED, LOW RIPPLE**
- **VOLTAGE AND CURRENT MONITOR OUTPUTS**
- **REMOTE HV INHIBIT**
- **VOLTAGE OR CURRENT CONTROL OPTIONS**

Spellman's MX10 is a high performance DC-DC converter featuring a "hot switchable" polarity reversal capability. The MX10's low ripple specification makes it ideal for Mass Spectrometry applications; especially security detection systems, Dynodes, sample ionization as well as capillary electrophoresis and electrostatic printing applications.

MX10^{PLUS} MASS SPECTROMETRY

0—10kV
Input: 15Vdc ±.75V
Load Reg.: <5V
Line Reg.: ≤0.02%
Ripple: ≤10V p-p
Dims.: 2.05"H x 5.3"W x 8"D
 50.8mm x 134.6mm x 203mm

- **±10KV 25MS POLARITY REVERSING SPEED**
- **HIGH STABILITY**
- **LOW RIPPLE AND NOISE**
- **HIGH VOLTAGE INHIBIT CONTROL**
- **ROHS COMPLIANT**



Spellman's RoHS compliant MX10 Plus is a fast reversible dynode supply featuring a 25ms "hot switchable" polarity reversing capability with an integrated -2.3kV electron multiplier supply.

The MX10 Plus's low ripple specification is ideal for mass spectrometry applications; especially security detection systems, dynodes, sample ionisation as well as capillary electrophoresis and electrostatic printing applications.

MX20 MASS SPECTROMETRY

500V—20kV
Input: 24Vdc ±1.2V
Load Reg.: 0.02%
Line Reg.: 0.01%
Ripple: ≤0.0025% V p-p
Dims.: 2.05"H x 6.61"W x 6.5"D
 52mm x 168mm x 165mm

- **WELL REGULATED, LOW RIPPLE**
- **POLARITY REVERSAL WITHIN 500ms**
- **REMOTE HV INHIBIT**
- **FLYING HIGH VOLTAGE OUTPUT CABLE**
- **VOLTAGE OR CURRENT CONTROL OPTIONS**



Spellman's MX20 is a DC-DC converter featuring a "hot switchable" polarity reversal capability. The MX20's low ripple specification makes it ideal for Mass Spectrometry applications; especially security detection systems, Dynodes, sample ionization as well as capillary electrophoresis and electrostatic printing applications.

TOF3000 MASS SPECTROMETRY

0—30kV
Input: 24Vdc +5%, -2%
Load Reg.: 0.001%
Line Reg.: 0.001%
Ripple: ≤70mV p-p
Dims.: 3"H x 5"W x 12.625"D
 70.6mm x 127mm x 322mm

- **REMOTE OUTPUT POLARITY REVERSIBILITY VIA TTL SIGNAL CONTROL**
- **ULTRA LOW RIPPLE AND NOISE**
- **ENCAPSULATED FOR RELIABLE, LONG TERM CORONA FREE OPERATION**
- **CE COMPLIANT**



The TOF3000 offers low ripple and noise, excellent temperature coefficient; a stable, repeatable and accurate output, along with remote output polarity reversing capability. These result in improved mass spectrometer resolution. Unique packaging and surface mount fabrication techniques, coupled with Spellman's proprietary encapsulation technology provide an attractive sized OEM package.

NIM-AC NUCLEAR INSTRUMENT APPLICATIONS

0—5kV
Input: 115Vdc and 220Vac
Load Reg.: ≤0.002%
Line Reg.: ≤0.001%
Ripple: as low as 5mV
Dims.: 2.7"H x 8.7"W x 9.7"D
 34mm x 221mm x 246mm

- **NIM CONFIGURATION**
- **LOW RIPPLE AND NOISE**
- **REMOVELY PROGRAMMABLE**
- **REVERSIBLE OUTPUT POLARITY**
- **NIM-DC UNITS AVAILABLE**



Spellman's Bertan brand of NIM-AC Series high voltage power supplies utilize a precision regulated linear topology, making them ideally suited for sensitive detector applications. These stable, low noise, high voltage power supplies are arc and short circuit protected for safe, reliable operation.

All units require AC input line power, either 115Vac or 220Vac and therefore can operate without a NIM bin DC power supply.

PMTS TUBE SOCKET SUPPLY

0—1000V
Input: 15Vdc ±5%
Load Reg.: ≤0.005%
Line Reg.: ≤0.005%
Ripple: ≤1.0mV p-p
Dims.: 1.25"dia. x 2.52"L
 31.75mm x 64mm

- **INTEGRATED POWER SUPPLY/ SOCKET DESIGN**
- **REGULATED OUTPUT**
- **FULLY ENCAPSULATED**
- **ARC/SHORT CIRCUIT PROTECTED**



Spellman's PMTS is a custom designed high voltage power supply and integrated mounting socket for standard 1.125 inch (28mm) side-on photomultiplier tubes. Ten equally divided, incremental output voltages are generated. The output voltage is programmable over the entire rated range via a ground referenced 0 to 5Vdc signal.

PFE POWER FEED EQUIPMENT

0—6kV
Input: 40.5Vdc to 60Vdc
Load Reg.: <0.1%
Line Reg.: ≤±0.1%
Ripple: 0.2% p-p
Dims.: 86.68"H x 23.64"W x 23.64"D
 2200mm x 600mm x 600mm

- **FULL ARRAY OF DRY CONTACT CLOSURES AVAILABLE**
- **ELECTRODING FUNCTIONS PROVIDED**
- **CERTIFIED TO EN60950 AND CE MARKED**



Spellman, the leading independent supplier of Power Feed Equipment to the Telecom industry, has developed a new generation of Low Voltage Power Feed Equipment, (LVPFE). This proposed new LVPFE is targeted at the emerging requirements for shorter submarine cable installations, while addressing underlying markets issues such as lower cost, smaller foot print, and easier operation.



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