



Spellman's new MPS20W series are a family of high voltage 20 Watt modules that provide output voltages ranging from 1kV to 20kV.

The MPS20W series are high performance products designed with Spellman's hybrid topology of linear and switch mode power conversion techniques delivering lower noise with higher efficiency. The MPS20W series produces excellent ripple and stability performance specifications from a compact footprint. Additionally the MPS20W series features, as standard, a differential amplifier input for the voltage programming signal to improve immunity from external system noise and addressing any offset issues. Alternatively the output voltage may be pre-set by an internal potentiometer. A fully featured remote user interface is provided via 15-pin D-type connector as standard. The output voltage is arc and short circuit protected and the power input has a current limiter fitted.

Spellman's proprietary HV technology coupled with SMT circuitry results in an ultra compact and lightweight module that is available as either a positive or negative supply that is ideal for OEM applications.

## TYPICAL APPLICATIONS

- Photomultiplier Tubes
- Microchannel Plate Detectors
- Scintillators
- Mass Spectrometry
- Electron and Ion Beams
- Electrostatic Lenses
- Nuclear Instruments
- Electrostatic Printing

## OPTIONS

**VCC** Variable Current Control

## SPECIFICATIONS

### Input Voltage:

+24 Vdc,  $\pm 2$ Vdc

### Input Current:

$\leq 1.5$  amps

### Output Voltage:

7 models available from 1kV to 20kV

### Output Polarity:

Positive or negative, specify at time of order

- **Differential Input for Voltage Program**
- **20 Watts Output Power**
- **Voltage and Current Controls**
- **Voltage and Current Monitors**
- **High Stability**
- **Ultra Low Ripple and Noise**
- **High Voltage Enable Control**

### Power:

$\leq 20$  watts

### Voltage Regulation:

Line:  $\leq 0.001\%$  of rated output voltage over specified input voltage

Load:  $\leq 0.001\%$  of rated output voltage for full load change

### Current Regulation (Vcc Option):

Line:  $\leq 0.01\%$  for 1V input voltage change under any load conditions

Load:  $\leq 0.001\%$  for 0 to full load

### Ripple:

See "model selection" table

### Stability:

$\leq 0.01\%$  per hour, 0.02% per 8 hours after 1.0 hour warm up period.

### Temperature Coefficient:

$\leq 25$ ppm per degree C

### Environmental:

Temperature Range:

Operating: 0°C to 50°C

Storage: -35°C to 85°C

Humidity:

20% to 85% RH, non-condensing

### Cooling:

Convection cooled

### Dimensions:

1-10kV 1.31" H x 3.74" W x 5.91" D (33.5mm x 95mm x 150mm)

15-20kV 1.31" H x 3.74" W x 7.28" D (33.5mm x 95mm x 185mm)

### Weight:

1-2kV: 15.17 oz. (430g)

3-10kV: 25.76 oz. (730g)

15-20kV: 35.30 oz. (1000g)

### Interface Connector:

15 pin male D connector

### Output Connector:

A captive 39.4" (1 meter) long shielded HV cable is provided

### Regulatory Approvals:

Compliant to EEC EMC Directive. Compliant to EEC Low Voltage Directive. UL/CUL recognized, File E227588. RoHS compliant.

## MPS20W SELECTION TABLE

Model	Output Voltage	Output Current	Ripple (Vpp)
MPS1*20/24	0-1kV	20mA	<25mV
MPS2*20/24	0-2kV	10 mA	<50mV
MPS3*20/24	0-3kV	6.67mA	<75mV
MPS5*20/24	0-5kV	4mA	<125mV
MPS10*20/24	0-10kV	2mA	<250mV
MPS15*20/24	0-15kV	1.33mA	<375mV
MPS20*20/24	0-20kV	1mA	<500mV

\*Specify "P" for positive polarity or "N" for negative polarity.  
Custom units available.

## MPS20W ANALOG INTERFACE—15 PIN D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	Power/Signal Ground	Ground
2	+24Vdc Input	+24Vdc @ 1.5 amp maximum
3	Voltage Monitor Output	0 to 10Vdc=0 to 100% Rated Output, Zout =2.2kΩ
4	Local Programming Potentiometer Wiper Output	Potentiometer connected to +10Vdc and Ground, 0 to 10Vdc adjustable wiper output provided
5	Voltage Program Input	0 to 10Vdc=0 to 100% Rated Output, Zin=10MΩ
6	Voltage Program Differential Amplifier Output	0 to 10Vdc=0 to 100% Rated Output, Zout =2.2kΩ
7	Voltage Program Differential Amplifier Input—Positive	0 to 10Vdc differential between pin 7 and pin 9 = 0 to 100% of rated output, diode clamped to ground, Zin =38kΩ
8	Current Monitor Output	0 to 10Vdc = 0 to 100% Rated Output, Zout =2.2kΩ
9	Voltage Program Differential Amplifier Input—Negative	0 to 10Vdc differential between pin 7 and pin 9 = 0 to 100% of Rated Output, diode clamped to ground, Zin =38kΩ
10	No Connection	No Connection
11	Current Program Input	Standard: Internally connected to provide 110% fixed current limit VCC Option: 0 to 10Vdc=0 to 100% Rated Output, Zin=1MΩ
12	Enable Input	Low = Enable, TTL, CMOS, Open Collector Compliant
13	Internal Connection	No Connection
14	No Connection	No Connection
15	Analog Signal Ground	Analog Signal Ground

DIMENSIONS: in.[mm]

