



Spellman's MXE series is a family of high voltage, high performance, ultra-compact, hot-switchable polarity reversing modules with output voltages ranging from 2.5kV to 10kV.

The MXE series units feature multiple control options: differential analog, RS-232 and RS-485 (half duplex). Spellman's advanced low noise, high stability technology provides the high quality and performance needed for precision applications.

TYPICAL APPLICATIONS

Mass Spectrometry	Electrostatic Printing
Automatic Test Equipment	Electrostatic Lenses
Capillary Electrophoresis	Electrospinning
Dual Ion Surface Analysis	Precision Laboratory

SPECIFICATIONS

Input Voltage:

+24Vdc, ± 1.2 Vdc

Input Current:

0.5A maximum

Output Voltage:

3 models available: ± 2.5 kV, ± 5 kV and ± 10 kV
Minimum programmable voltage and max offset when programmed to 0V or disabled:

MXE2.5: ± 50 V

MXE5 and MXE10: ± 75 V

The output is not designed to sink current

Output Polarity:

Hot-switchable polarity reversing

Output Current:

200 μ A maximum

Voltage Regulation:

Line: For a 5% line change 20ppm

Load: 0-100% load 20ppm

Accuracies:

Voltage Control and Monitor:
 $\pm 1\%$ or ± 10 V (whichever is greater)

Current Monitor:
 $\pm 5\%$ or $\pm 2\mu$ A (whichever is greater)

Current Control (Digital):
 $\pm 2\%$ or $\pm 2\mu$ A (whichever is greater)

Voltage Program Repeatability: $\pm 0.1\%$

- **Hot-switchable polarity reversing modules from 2.5kV to 10kV, at 200 μ A**
- **Differential Analog, RS-232 and RS-485 Control**
- **High Stability, Low Temperature Coefficient**
- **Ultra Low Ripple and Noise, Specified Down to 1/f Band**
- **Free GUI for testing and development work**

Resolution (Digital Control):

Voltage control and monitor: 0.1V

Current control: 0.1 μ A

Current monitor: 0.3 μ A

Current Limit:

230 μ A to 250 μ A

Polarity Reversal Time:

5s to within 2ppm

0.5s to within 99%

at max output voltage and up to 100pF connected capacitance

Output Decay Time:

5s to <50V at no-load condition

Ripple:

≤ 30 mV between 0.01Hz and 20MHz

Stability:

≤ 15 ppm/8h after one hour warm up period

Temperature Coefficient:

≤ 15 ppm per degree C

Protection:

Arc and short circuit protected. Not designed to withstand continuous arcing. The power supply will fully recover once the short is removed.

Digital Features:

The following features are available when operating in digital control mode.

- Multiple units operation
- Current control (min controllable current: 5 μ A)
- Programmable current and voltage ramps

Environmental:

Temperature Range:

Operating: 10°C to 45°C

Storage: -20°C to 85°C

Humidity:

5% to 90% RH, non-condensing

Cooling:

Convection cooled

Dimensions:

1.9" H X 5.7" W X 6.8" D (48mm x 144mm x 172mm)

Weight:

3.74 lbs (1.7kg)

Interface Connector:

15 pin male D connector

Output Connector:

Captive 39.4" (1 meter) long un-terminated shielded HRG58 HV cable (URM76 compatible)

Regulatory Approvals:

Compliant to EEC Low Voltage Directive. UL/CUL recognized, File E354595. UK Conformity Assessed. RoHS Compliant.

MXE SELECTION TABLE

Model	Output Voltage	Output Current
MXE2.5PN24	±2.5kV	200μA
MXE5PN24	±5kV	200μA
MXE10PN24	±10kV	200μA

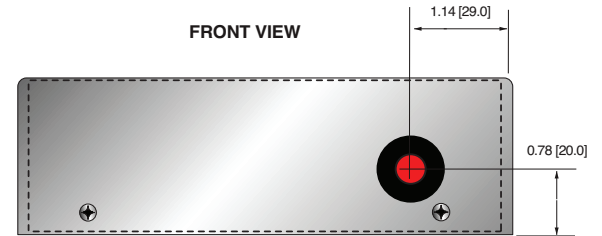
MXE EXTERNAL INTERFACE — 15 PIN MALE D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	24Vdc Return	Input voltage return
2	+24Vdc Input	Input voltage +24dc @ 0.5A max
3	Voltage Monitor Output	0 to 10Vdc = 0 to 100% rated output, Zout=330Ω
4	Polarity Set Input	TTL level or open/short contact signal. Low or short = Positive, high or open = Negative
5	Comms Select	TTL level or open/short signal. Low or short = RS485, high or open = RS232
6	Voltage Program Return	0 to 10Vdc differential between pin 7 and pin 6 =
7	Voltage Program Input	0 to 100% of rated output, Zin=100kΩ
8	Current Monitor Output	0 to 10Vdc = 0 to 200μA, Zout=330Ω
9	RS232 RxD/RS485+	Receive data (input) wrt pin 11 or RS485 non-inverting
10	RS232 TxD/RS485-	Transmit data (Output) wrt pin 11 or RS485 inverting
11	Signal Ground	Signal ground for control and monitoring
12	Enable Input	TTL level or open/short contact signal. Low or short = enabled, high or open = disabled
13	Vprog A	Connect to pin 14 for analog Vprog control
14	VprogINT	Connect to pin 13 for analog Vprog or pin 15 for digital Vprog
15	Vprog D	Connect to pin 14 for digital VProg control

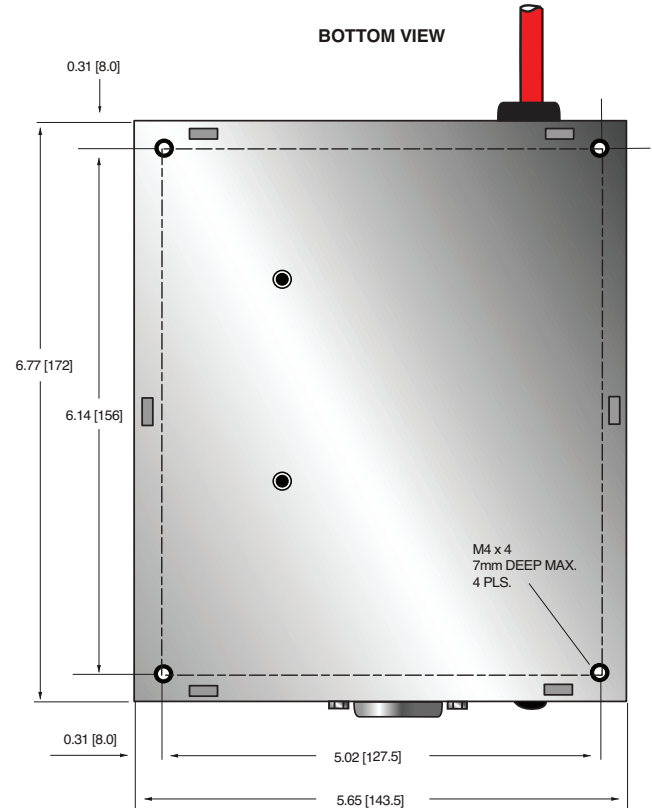
Note: The MXE starts in analogue control at power on, if digital communication is detected, it switches to and remains in digital mode until power cycled.

DIMENSIONS: in.[mm]

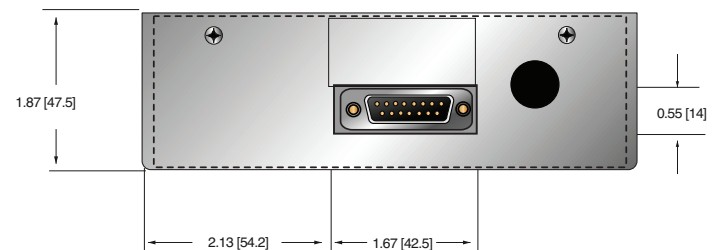
FRONT VIEW



BOTTOM VIEW



REAR VIEW



SIDE VIEW

