



Spellman's MXR Series are well-regulated high performance DC-DC converters. The MXR's low ripple specification makes it ideal for Mass Spectrometry and electron microscopes. The MXR20 is rated at 20kV @ 300uA and MXR30 is rated at 30kV @ 300uA. Both are packaged in a shielded metal enclosure and are available either in analog or RS-232 digital control options. These units feature a logic signal input to control output polarity reversal. Voltage, polarity and current monitors are provided. The digital version also features an opto isolated interlock input (HV Enable/Inhibit). Easily customized to meet OEM requirements, the MXR Series can be provided with current control, improved ripple performance and higher voltage and current capabilities.

TYPICAL APPLICATIONS

Mass Spectrometry
Electron Microscopes
Capillary Electrophoresis
Electrostatic Printing

OPTIONS

MXR can be ordered as an analog or a digital controlled unit. See How To Order information below.

Custom captive cable options available upon request.

SPECIFICATIONS

Input Voltage:

24Vdc ($\pm 5\%$)

Input Current:

≤ 1.25 A nominal continuous
 ≤ 4.5 A peak during reversing

Output Voltage:

0V to ± 20 kV (MXR20)
0V to ± 30 kV (MXR30)

Output Current:

$< 300\mu$ A

Voltage Regulation:

Load: < 50 ppm of maximum output voltage for a no load to full load change
Line: < 20 ppm of maximum output voltage for a 5% input line change

Programming and Monitor Accuracy:

$\pm 2\%$ Voltage Programming/Monitor

- **Hot Switchable Reversible Polarity, Settles to < 3 ppm Within 2s**
- **Voltage and Current Monitor Outputs**
- **Arc and Short Circuit Protected**
- **Well Regulated, Low Ripple, High Stability**
- **UL Recognized, CE Marked and RoHS Compliant**
- **OEM Customization Available**

[MXR manual](#)

[MXR serial protocol](#)

Ripple:

20kV: 100mVp-p
30kV: 150mVp-p

Stability:

1hr = 10ppm max. after 1 hr warm-up
8hrs = 20ppm max. after 1 hr warm-up

Temperature Coefficient:

10ppm/ $^{\circ}$ C

Reversing Time:

2s for +20kV to -20kV or +30kV to -30kV settling to < 3 ppm. Faster switching times available on request.

Environmental:

Temperature Range:
Operating: 10° C to 50° C
Storage: -35° C to 85° C
Humidity:
0% to 85%, non-condensing

Cooling:

Convection cooled

Dimensions:

2.05" H X 8.47" W X 9.45" D (52mm X 215mm X 240mm)

Weight:

8.80 pounds (4.0kg)

Input Connectors:

Analog units:
Power and Control: 12 way Samtec FWS 12-04-T-S-RA
Digital units:
Power: 2 way Molex Mini-fit Jr 39-30-1022
Control: 10 way 'IDC Ribbon cable' connector
3M N3793-5302RB

Output Connector:

Standard output is GES HB30 receptacle (GES p/n: 7331051). Mating plug is GES HS30 (p/n: 7331050, not included). Mating cable assembly can be ordered separately, see How To Order information below.

Regulatory Approvals:

UL recognized component (RC). File number E354595. Compliant to IEC/UL 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use; CAN/CSA-C22.2 No.61010-1. CE marked to EN 61010-1. UKCA marked to BS EN 61010-1. RoHS compliant. As the unit is designed for incorporation within the user's system it is not tested against any specific EMC standards. Compliance with any relevant EMC standards on a system level are the responsibility of the equipment designer.

ANALOG UNITS—POWER AND CONTROL 12 PIN SAMTEC FWS CONNECTOR

PIN	SIGNAL
1	Current monitor output 0-10V = 0V to 500µA Zout=10kΩ, Accuracy ±5%
2	+24Vdc Input
3	Voltage monitor output 0-10V = 0V to Max V Zout=10kΩ, Accuracy ±2%
4	N/C
5	N/C
6	N/C
7	Voltage program input 0-10V = 0V to Max V Zin>1MΩ, Accuracy ±2%
8	Polarity set input, TTL levels: LO = +VE, HI/Open = -VE
9	Signal ground
10	Ground return for +24Vdc
11	N/C
12	Polarity status output LO (<200mV, source 1.5kΩ) = +VE, HI (+24V, source 2.2kΩ) = -VE

DIGITAL UNITS—POWER 2 PIN MOLEX MINI-FIT JR

PIN	SIGNAL
1	+24Vdc Input
2	Ground return for +24Vdc

DIGITAL UNITS—CONTROL 10 PIN IDC RIBBON CONNECTOR

PIN	SIGNAL
1	Transmit data (output) with respect to pin 2
2	Serial signal ground return (if required)
3	Receive data (input) with respect to pin 2
4	N/C
5	N/C
6	N/C
7	Interlock opto-isolator input (0mA = Voltage Inhibit) see*
8	Interlock opto-isolator signal return
9	Polarity set opto-isolator input (0mA = -VE) see*
10	Polarity set signal opto-isolator signal return

*Note: 3.3V@6mA or 5V@10mA

How to Order:

Analog (standard): PART NO.: MXR20PN24
PART NO.: MXR30PN24

Digital (option): PART NO.: MXR20PN24/DCC2
PART NO.: MXR30PN24/DCC2

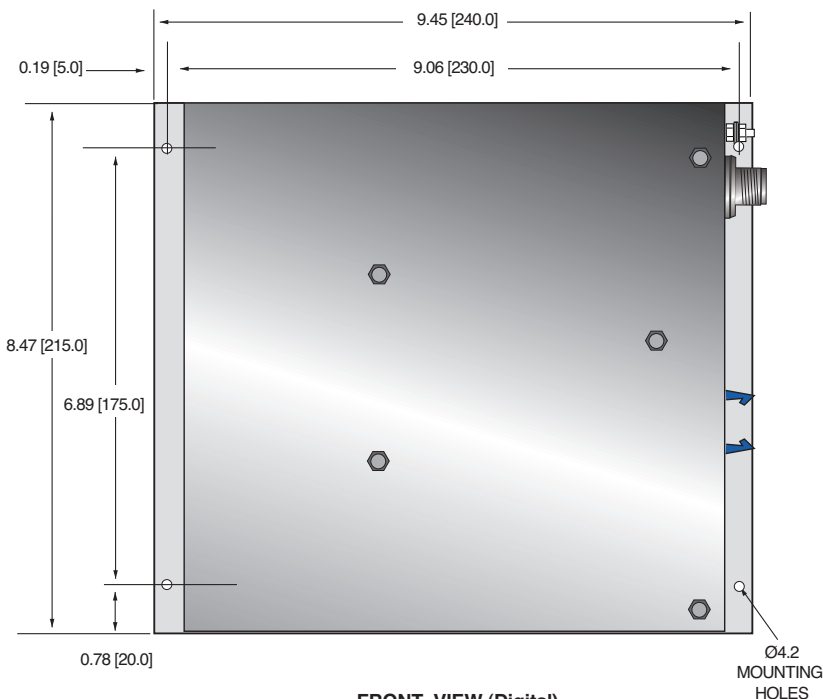
Mating cable, length 2m: PART NO.: HVC30/1S/1279

DIMENSIONS: in.[mm]

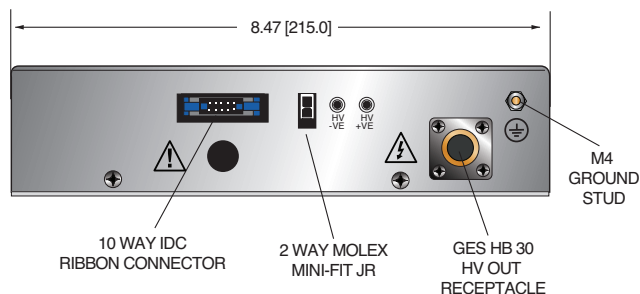
SIDE VIEW



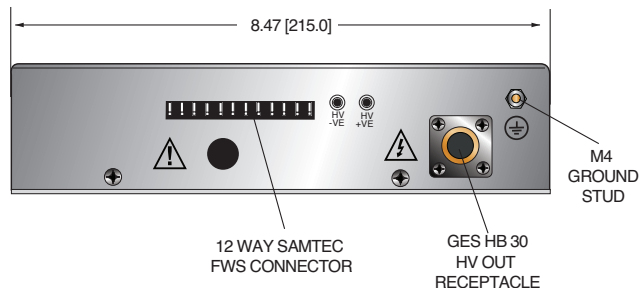
TOP VIEW



FRONT VIEW (Digital)



FRONT VIEW (Analog)



Corporate Headquarters
Hauppauge, New York USA
+1-631-630-3000 FAX: +1-631-435-1620
e-mail: sales@spellmanhv.com

www.spellmanhv.com

128116-001 REV. H

Spellman High Voltage is an ISO 9001 and ISO 14001 registered company

Copyright © 2015 Spellman High Voltage Electronics Corp.