



Spellman's new DXM Series of X-Ray generator modules are designed for OEM applications up to 70kV at 1200 watts. Its universal input, small package size and choice of three standard digital interfaces simplifies integrating the DXM into your X-Ray analysis system. Models are available to operate either floating filament (negative HV polarity) or ground referenced filament (positive HV polarity), X-Ray tube designs. DSP based emission control circuitry provides excellent regulation of emission current, along with outstanding stability performance.

TYPICAL APPLICATIONS

- Plastics Sorting
- Crystal Inspection
- Plating Measurement
- Diamond Inspection
- Mineral Analysis
- X-Ray Fluorescence
- X-Ray Diffraction

SPECIFICATIONS

Input Voltage:

Power factor corrected input
90-264Vac, 47-63 Hertz, for 300 watt units
180-264Vac, 47-63 Hertz for 600 and 1200 watt units

Output Voltage:

6 models—20kV, 30kV, 40kV, 50kV, 60kV and 70kV

Output Polarity:

Negative-for floating filament X-ray tubes
Positive-for ground referenced filament X-ray tubes

Power:

3 power ranges available—300 watts, 600 watts and 1200 watts
Other power levels available on special order.

Output Voltage Regulation:

≤0.01% of rated output voltage over specified input voltage range
≤0.01% of rated output voltage for a full load change

Emission Current Regulation:

≤0.01% of rated output current over specified input voltage range
≤0.01% of rated output current for a change from 30% to 100% of rated output voltage
Filament is disabled when kV is <30% of full scale output

- **COMPACT & LIGHTWEIGHT**
- **MODELS FROM 20KV-70KV, 300W, 600W AND 1200W**
- **UNIVERSAL INPUT, POWER FACTOR CORRECTED**
- **HOT ANODE OR HOT CATHODE X-RAY TUBE CAPABLE**
- **STANDARD DIGITAL INTERFACES: USB, ETHERNET AND RS-232**
- **CE COMPLIANT**

www.spellmanhv.com/manuals/DXM

Ripple:

≤1%rms at >20 kHz, 0.1%rms below 20 kHz

Stability:

≤25ppm/hr after a 2 hour warm up

Temperature Coefficient:

≤50ppm per degree C

Environmental:

Temperature Range:
Operating: 0°C to 40°C
Storage: -40°C to 85°C

Humidity:

20% to 85% RH, non-condensing.

Filament Configuration:

Closed loop emission control regulates filament setting to provide desired Xray tube emission current.

Two types are available: Floating Filament (ac output referenced to negative output voltage) and Ground Referenced Filament (dc output referenced to ground).

Output:

0-5 amps at a compliance of 10 volts, maximum.
The filament loop is disabled when the kV output is less than 30% of full scale output to protect the X-Ray tube.
Other filament levels available on special order.

Control Interface

Local Interface:

Potentiometers are provided to adjust filament limit and preheat levels

Remote Interface: USB, Ethernet and RS232 are standard.
All digital monitors have an accuracy specification of 2%

Control Software: A Windows graphical user interface example is provided. Built-in diagnostics can be performed over Ethernet via a Java applet and any standard web browser

High Voltage Enable: A hardware based, dry contact closure will enable the power supply into the high voltage on mode

Monitor Signals: Voltage and current monitor signals are scaled 0-10Vdc equals 0-100% of full scale, accuracy is 1%

Cooling:

Forced air

Dimensions:

300/600 Watts: 4.75" H X 6" W X 12" D
(120.65mm x 152.4mm x 304.8mm)
1200 Watts: 4.75" H X 12" W X 12" D
(120.65mm x 304.8mm x 304.8mm)

Weight:

300/600 Watts: 14 pounds (6.35kg)
 1200 Watts: 26 pounds (11.8kg)

Input Line Connector:

IEC320 with EMI filter

Output Connector:

Depends upon polarity selected. See table and drawing.
 Other connectors and pinouts available on special order.

Regulatory Approvals:

Compliant to 2004/108/EC, The EMC Directive and 2006/95/EC, The Low Voltage Directive, UL/CUL recognized file E227588

DXM SELECTION TABLE— 300W, 600W, 1200W

300 Watt			600 Watt		1200 Watt	
kV	mA	Model	mA	Model	mA	Model
20	15	DXM20*300	30	DXM20*600	60	DXM20*1200
30	10	DXM30*300	20	DXM30*	40	DXM30*1200
40	7.5	DXM40*300	15	DXM40*600	30	DXM40*1200
50	6	DXM50*300	12	DXM50*600	24	DXM50*1200
60	5	DXM60*300	10	DXM60*600	20	DXM60*1200
70	4.28	DXM70*300	8.56	DXM70*600	17.12	DXM70*1200

*Specify "P" for positive polarity or "N" for negative polarity

DXM ANALOG INTERFACE— J2 15 PIN MALE D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	Power Supply Fault	Open Collector, 35V @ 10mA Maximum
2	Current Program In	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
3	Voltage Program In	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
4	Filament Limit Input	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
5	Local Filament Limit	Multi-turn front panel potentiometer
6	Filament Preheat Input	0 to 10V=0 to 100% Rated Output, Zin=10MΩ
7	Local Filament Preheat	Multi-turn front panel potentiometer
8	Voltage Monitor	0 to 10V=0 to 100% Rated Output, Zout=4.99k, 1%
9	Signal Ground	Ground
10	Current Monitor	0 to 10V=0 to 100% Rated Output, Zout=4.99k, 1%
11	X-ray Enable Input	Connect to Pin 12 to HV Enable Supply
12	X-ray Enable Output	+15V @ Open, ≤15mA @ Closed
13	Filament Monitor	1 Volt=1 Amp, Zout=10kΩ
14	X-ray On Output Signal	Open Collector, 35V @10mA Maximum
15	Spare	n/c

RS-232 DIGITAL INTERFACE— J3 9 PIN FEMALE D CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	NC	No Connection
2	TX out	Transmit Data
3	RX in	Receive Data
4	NC	No Connection
5	SGND	Ground
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection

USB DIGITAL INTERFACE— J4 4 PIN USB "B" CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	VBUS	+5 Vdc
2	D-	Data -
3	D+	Data +
4	GND	Ground

FILAMENT TERMINAL BLOCK— TB1 TWO POSITION TERMINAL BLOCK

POSITION	SIGNAL	SIGNAL PARAMETERS
1	Filament Output	0-5 amps, 10Vdc Maximum
2	Filament Return	Filament Return

For positive polarity/ground referenced filament units

ETHERNET DIGITAL INTERFACE— J5 8 PIN RJ45 CONNECTOR

PIN	SIGNAL	SIGNAL PARAMETERS
1	TX+	Transmit Data +
2	TX-	Transmit Data -
3	RX+	Receive Data +
4	NC	No Connection
5	NC	No Connection
6	RX-	Receive Data -
7	NC	No Connection
8	NC	No Connection

HIGH VOLTAGE OUTPUT CONNECTOR— J6: FLOATING FILAMENT

Negative Polarity: Claymount Mini Federal Standard X-ray connector

HIGH VOLTAGE OUTPUT CONNECTOR— J6: GROUND FILAMENT

Positive Polarity: Spellman High Voltage Delrin Drywell connector. 4 foot (1.21m) long high voltage cable provided

For positive polarity units a ground referenced filament output is provided on a two position terminal TB1. See table

CLAYMOUNT HV CONNECTOR PINOUT

PIN	OUTPUT CONNECTION
C (common)	High Voltage Output
S (small)	High Voltage Output
L (large)	Filament Output
G (grid)	Filament Output

Note: No high voltage cable is provided

Recommended Cable:

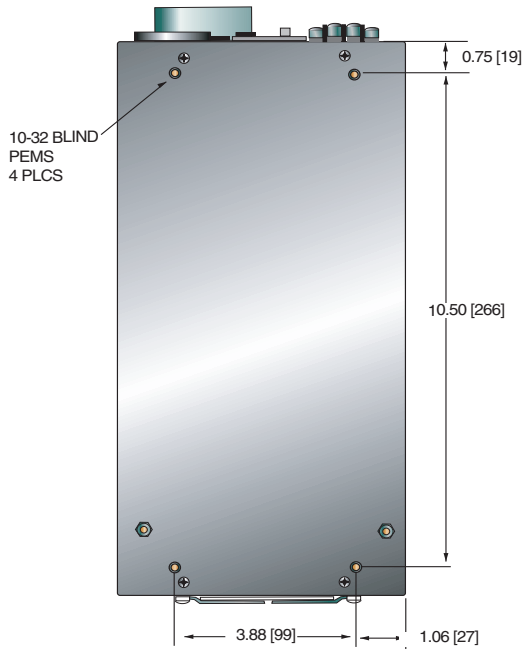
Claymount part number: 12096

Cable assembly, L3 CA11, CA11, 10F, CS=Bare 10 foot, Mini Federal Connectors on both ends, "C" and "S" are both connected to the bare shield wire

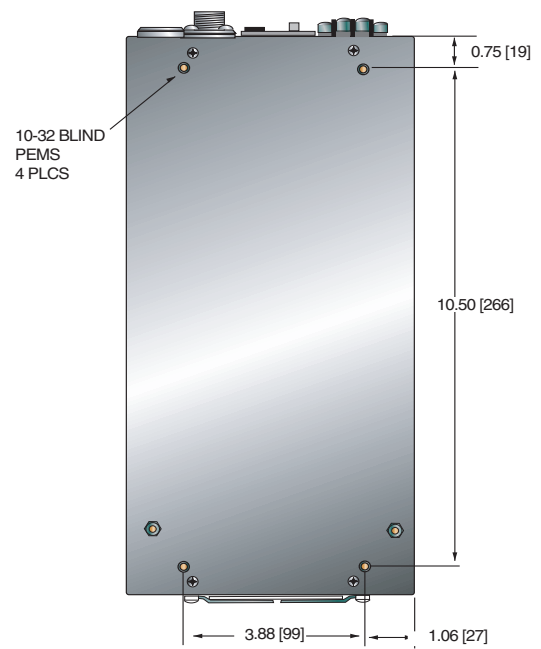
DIMENSIONS: in.[mm]

300/600 Watt

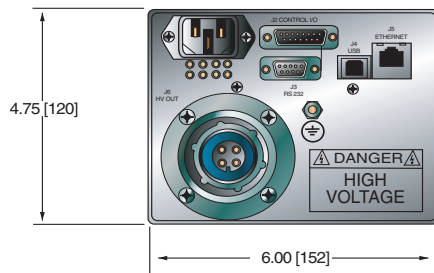
BOTTOM VIEW



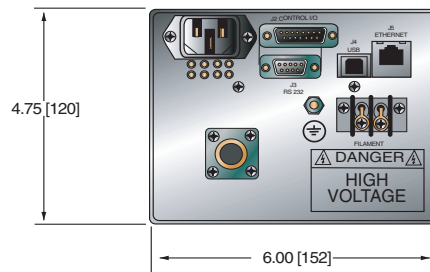
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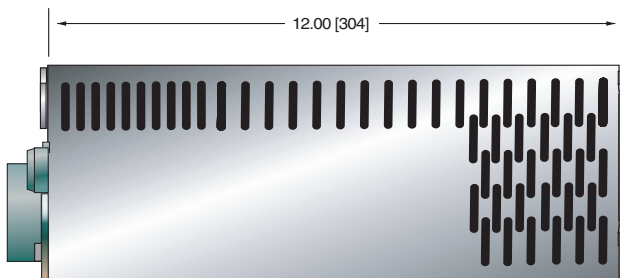
FRONT VIEW



FRONT VIEW

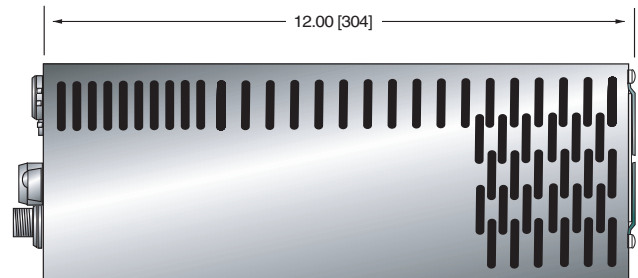


SIDE VIEW



Negative Polarity - Floating Filament

SIDE VIEW

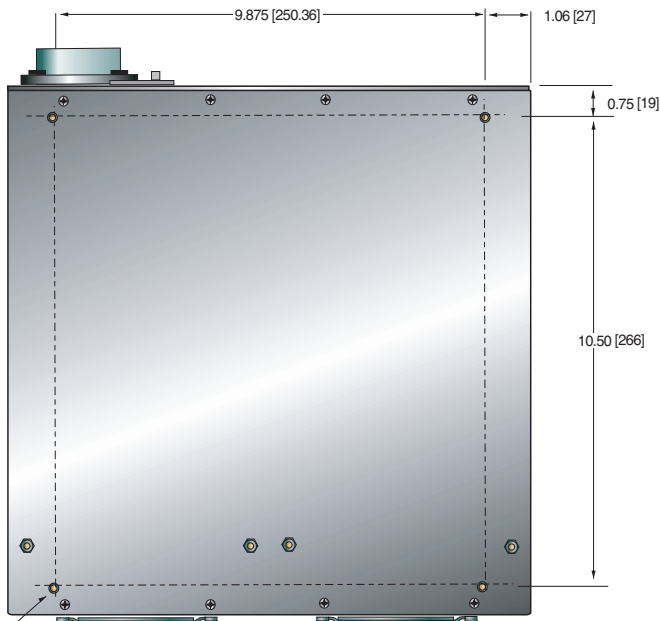


Positive Polarity - Ground Filament

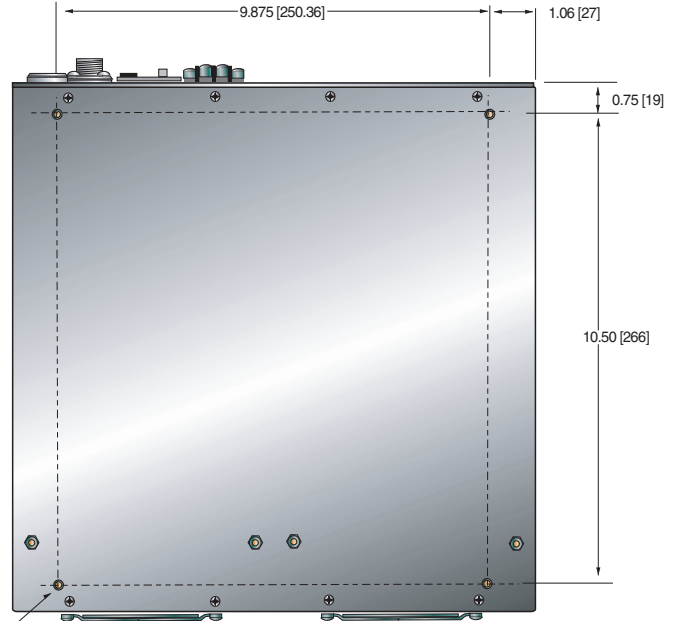


DIMENSIONS: in.[mm]
1200 Watt

BOTTOM VIEW



BOTTOM VIEW

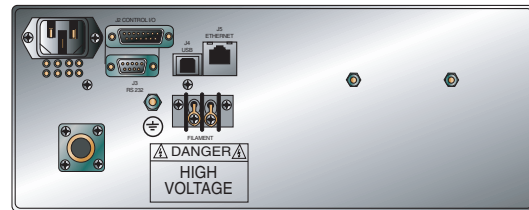
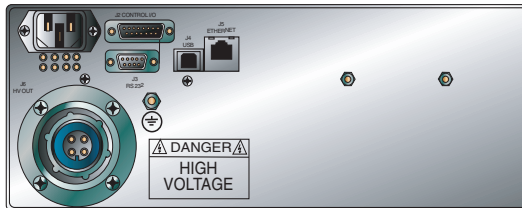


10-32 BLIND
PEMS
4 PLCS

FRONT VIEW

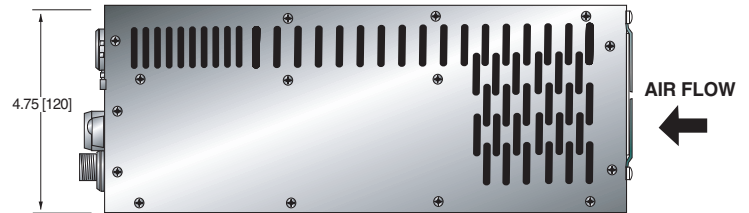
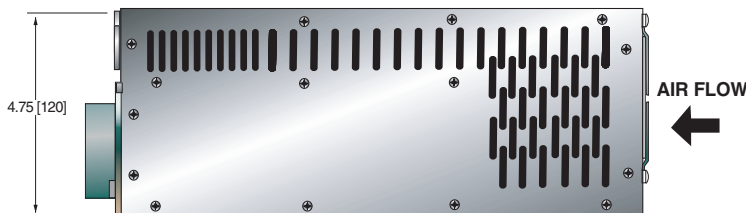
10-32 BLIND
PEMS
4 PLCS

FRONT VIEW



SIDE VIEW

SIDE VIEW



Negative Polarity - Floating Filament

Positive Polarity - Ground Filament

