

Ask about our X-Ray subsystem capabilities



80kV unit shown



- **50kV, 65kV and 80kV Output Voltage**
- **100W Output Power**
- **Adjustable Ground Isolated Filament Supply**
- **Overtoltage & Short Circuit Protection**
- **Voltage & Current Programming**
- **Local and Remote Emission Control**
- **Safety Interlock**
- **RS-232, Ethernet, & USB Standard**
- **Redundant HV Monitor Signal**

The uXHP Series is the result of Spellman's exceptional high voltage packaging and surface mount fabrication techniques coupled with proprietary encapsulation technology producing this ultra-compact X-Ray generator module. The uXHP powers grounded cathode X-Ray tubes from a variety of well-known manufacturers, featuring a 0 to 50kV/65kV/80kV high voltage output @ 5mA limited to 100W. The uXHP uses closed loop filament control circuitry providing highly regulated beam current. The low noise dc filament supply operates between 0.3 and 3.5A. Offering tight regulation, high stability and low ripple, the uXHP provides users local and remote analog control to set beam voltage, emission current and filament current limit. USB, RS-232 and Ethernet interface is standard.

### TYPICAL APPLICATIONS

Powering grounded cathode X-Ray tubes from Varex, KeveX, Oxford, RTW, Superior and Trufocus.

### SPECIFICATIONS

#### Input:

+24Vdc  $\pm$ 1V; 7.75A maximum

#### Efficiency:

75%, typical

#### Output:

See model selection table on page 2

#### Voltage Control:

Local: Internal multi-turn potentiometer to set voltage from 0 to full output voltage.

Remote: 0 to 10Vdc = 0 to 100% rated output voltage. Accuracy:  $\pm$ 1%.  $Z_{IN}$  = 10Mohm.

#### Emission Control:

Local: Internal potentiometer to set beam current from 0 to full output current.

Remote: 0 to 10Vdc = 0 to 100% rated output current. Accuracy:  $\pm$ 1%.  $Z_{IN}$  = 10Mohm. Filament limit and filament preheat control capability is also provided.

#### Voltage and Current Monitors:

0 to 10Vdc = 0 to 100% rated output  
Accuracy:  $\pm$ 1%.  $Z_{OUT}$  = 1kohm

#### Redundant Voltage Monitor:

A redundant high voltage feedback divider where 0 to 10Vdc = 0 to 100% rated output is monitored via firmware. The analog monitor signal can be provided by special order.

#### Temperature Coefficient:

0.01% per  $^{\circ}$ C, voltage and current.

#### Stability:

0.05% per 8 hours after 1/2 hour warm-up.

#### Digital Interface:

RS-232, Ethernet and USB is standard

#### DC Filament Supply:

Ground isolated filament power supply allows actual tube current feedback signal for monitoring accurate low X-Ray tube current performance.

Current: 0-3.5A, adjustable limit  
Voltage: 5.0V, maximum compliance

#### Environmental:

Operational: 0 $^{\circ}$  C to +50 $^{\circ}$  C  
Storage: -40 $^{\circ}$  C to +85 $^{\circ}$  C  
Humidity: 0% to 90%, non-condensing

#### Dimensions:

50/65kV Unit: 7.00"H x 3.07"W x 9.00"D  
(177.80mm x 78.00mm x 228.60mm)  
80kV Unit: 7.00"H x 3.07"W x 10.50"D  
(177.80mm x 78.00mm x 266.70mm)

#### Weight:

50/65kV Unit: 8.5 lbs. (3.85kg)  
80kV Unit: 10.0 lbs. (4.53kg)

#### Cooling:

User provided forced air cooling is required

#### Regulatory Approvals:

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

## uXHP MODEL SELECTION TABLE

OUTPUT VOLTAGE	OUTPUT CURRENT	OUTPUT POWER	MODEL NUMBER
0-50kV	0-5mA	100W	uXHP50P100
0-65kV	0-5mA	100W	uXHP65P100
0-80kV	0-5mA	100W	uXHP80P100

## CONTROL POWER INPUT CONNECTOR

PIN	SIGNAL	PARAMETER
1	+24V Control Power	+24 volts @ 1A, max.
2	+24V Control Power Return	Power Ground

## FILAMENT CONNECTOR

PIN	SIGNAL	PARAMETER
1	Filament Output	0.3A to 3.5A @ 5V, max.
2	Filament Return	Filament Return

Note: The filament return wire cannot be grounded as this would short circuit the tube return current monitoring to the uXHP. If grounding of the filament is required, please consult the factory.

## ANALOG INTERFACE CONNECTOR MALE 15 PIN MINI "D"

PIN	SIGNAL	PARAMETER
1	Monitor Return	Signal Ground
2	Voltage Monitor	0-10V = 0 to full scale, Zout=1KΩ
3	Current Monitor	0-10V = 0 to full scale, Zout=1KΩ
4	Interlock Output	Connect 12V HV ON bulb to pin 15 to enable
5	+10V Reference	+10V at 1mA, maximum
6	Filament Monitor	1V = 1A, Zout=1KΩ
7	Voltage Program Input	0-10V = 0 to full scale, Zin=10MΩ
8	Local Voltage Program*	0-10V, screwdriver adjust
9	Filament Limit Setpoint*	1V = 1A, screwdriver adjust
10	Current Program Input	0-10V = 0 to full scale, Zin=10MΩ
11	Local Current Program*	10 turn pot, screwdriver adjust
12	Not used (+24V Out for Interlock)	(Optional Interlock configuration)
13	Not used (Interlock Coil)	(Optional Interlock configuration)
14	Filament Preheat Setpoint*	1V = 1A, screwdriver adjust
15	Interlock Return	Interlock Ground

\*Denotes 10 turn potentiometer accessible through holes in cover

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

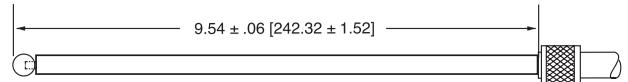
PIN	SIGNAL	PARAMETER
1	VBUS	+5Vdc
2	D-	Data -
3	D+	Data +
4	GND	Ground

## HIGH VOLTAGE OUTPUT CONNECTOR

Spellman drywell type detachable connector.

**50/65kV:** A one meter (39.4") long polyethylene mating high voltage cable with banana plug termination is provided.

**80kV:** A one meter (39.4") long polyethylene mating high voltage cable with corona ball termination is provided.



### HV Cable Options:

**5302:** (50kV unit only)  
A one meter (39.4") long Mammoflex mating high voltage cable is provided, SHV p/n 201946-007

**2001:** (50kV with XCC option and 65kV units only)  
A one meter (39.4") long Mammoflex mating high voltage cable is provided, compatible with the XCC Option SHV p/n 201946-002

## HIGH VOLTAGE POWER INPUT CONNECTOR 2 PIN PHOENIX CONTACT

PIN	SIGNAL	PARAMETER
1	+24V High Voltage Power Input	+24V @ 7.75A max
2	+24V High Voltage Power Return	Power Ground

## ETHERNET DIGITAL INTERFACE — 8 PIN RJ45 CONNECTOR

PIN	SIGNAL	PARAMETER
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

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

PIN	SIGNAL	PARAMETER
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	Voltage Monitor 2	0-10V = 0 to full scale, Zout = 1KΩ
9	Power Supply OK	+15V = OK, 0V = Fault, Sink/Source 3mA max

### How To Order:

Sample model number:

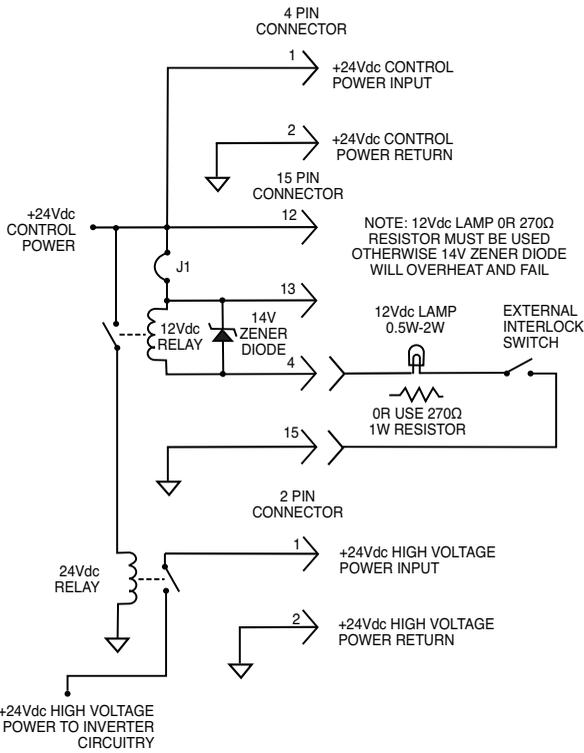
50kV unit: uXHP50P100

65kV unit: uXHP65P100

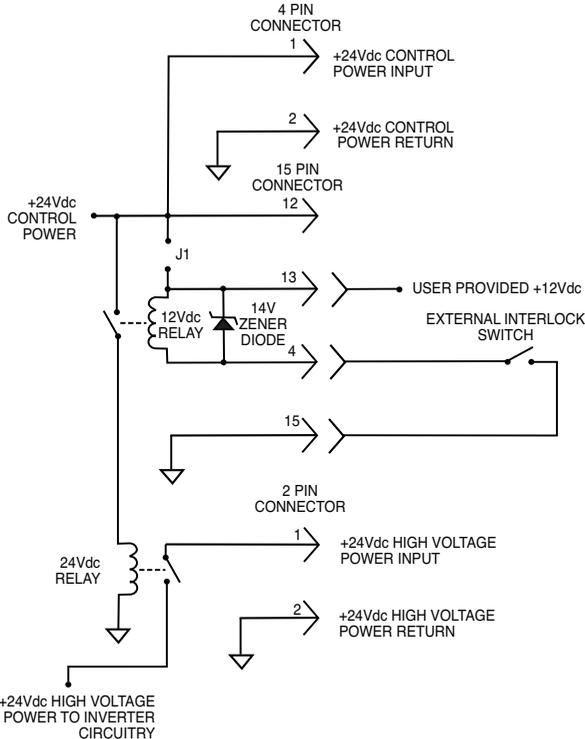
80kV unit: uXHP80P100

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### RECOMMENDED INTERLOCK CONFIGURATION



### ALTERNATE INTERLOCK CONFIGURATION



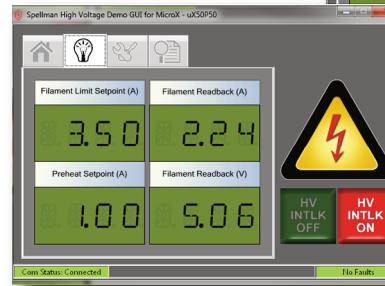
### Digital Interface

The uXHP features a standard USB, RS-232 and Ethernet digital interface. Utilizing these standard digital interfaces can dramatically simplify power supply interfacing requirements saving the user both time and money, while enhancing functionality and overall capability. Spellman provides a GUI with the uXHP that allows the customer to both customize operational features of the uXHP while also providing basic power supply operational features. Details of the uXHP's digital interface capability are described in detail in the uXHP manual.

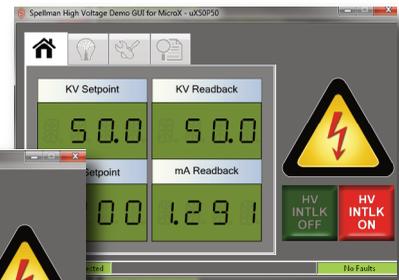


Closeup showing digital interface connectors

### Filament Status Screen



Main Control Screen



### Varex VF-80J X-Ray Tube

The uXHP was specifically designed in cooperation with Varex to power their new VF-80J X-Ray tube. This joint effort resulted in the creation of both the VF-80J X-Ray tube and the uXHP X-Ray generator. The Varex VF-80J tube is uniquely rated to run at up to 80kV @ 100 watts, 4mA maximum.

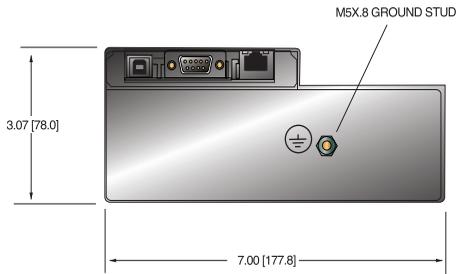
The uXHP was explicitly designed to operate at up to 80kV and provide 100 watts down to 25kV, so customers could make full use of the capabilities of the VF-80J X-Ray tube. Varex and Spellman, working together to push the boundaries of X-Ray technology.



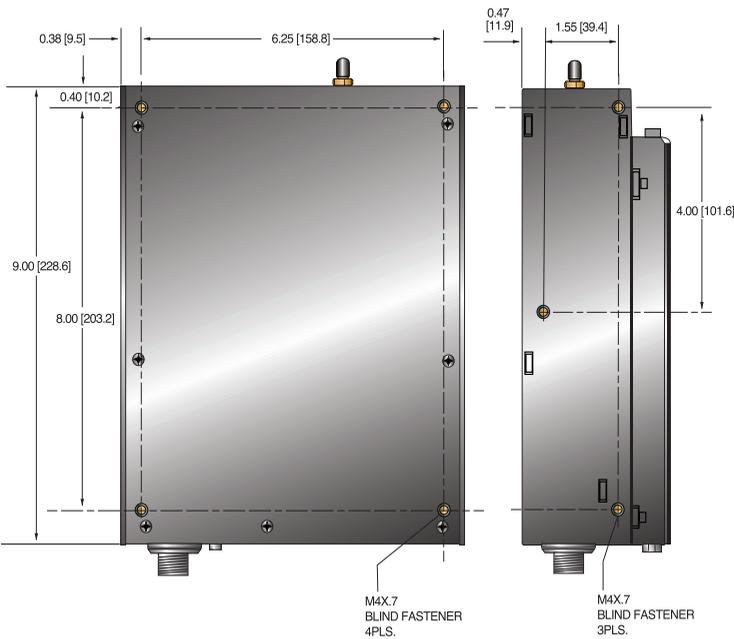
DIMENSIONS: in.[mm]

#### 50kV, 50kV/XCC and 65kV

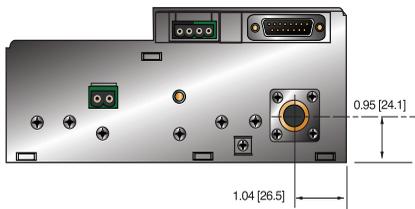
BACK VIEW



BOTTOM VIEW

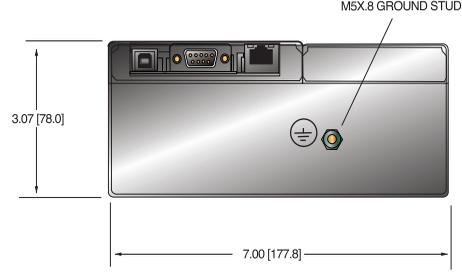


FRONT VIEW

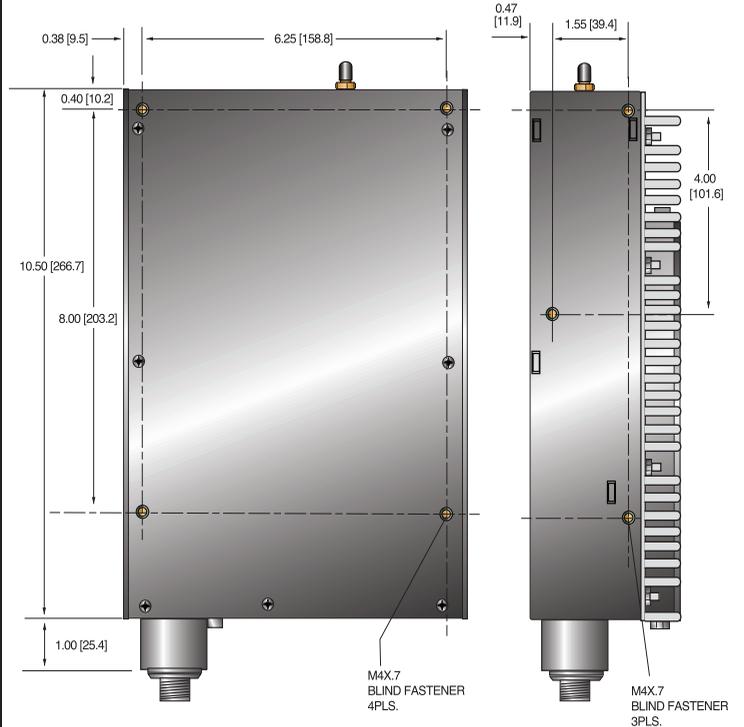


#### 80kV

BACK VIEW



BOTTOM VIEW



FRONT VIEW

