



Wisman's XRN Series of regulated X-ray power supplies offer output voltages to 65KV and incorporate a filament supply which provides regulated dc current adjustable between 0.7A and 3.5 A AT 5.5V. High voltage and filament current can be linearly ramped up. An optional USB 2.0, RS-232 or RS-422 is available. The XRN incorporates local and remote programming, safety interlock, short-circuit and overload protection.

TYPICAL APPLICATIONS:

Grounded anode X-ray tubes from Kevex, Oxford, RTW, Superior, Varian and Trufocus....

OPTIONS:

XCC	XRW Compatible HV cable (50KV only)
GB	Grid Bias option
USB	USB Interface
RS232	RS-232 Interface
RS422	RS-422 Interface
NAT	ARC does not shutdown
AT(X)	ARC shutdown (option 1-8 arc)
5VPM	0 to 5 Volt Programming and Monitor Scaling

SPECIFICATIONS:

Input:

+24Vdc \pm 10% , 5.0A maximum for either 50 watts or 75 watts .
+24Vdc \pm 10% , 8.0A maximum for 100 watts units .

Output:

See "XRN SELECTION TABLE"

Voltage Control:

Local: Internal multi-turn potentiometer to set voltage from 0 to full output voltage.
Remote: 0 to +10Vdc proportional from 0 to full output voltage.

Emission Control:

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

- **OPTIONAL USB2.0. RS-232 OR RS-422 IS AVAILABLE.**
- **50KV AT 2 MA. 100 WATT MAX.**
- **65KV AT 2 MA. 100 WATT MAX.**
- **ADJUSTABLE INTEGRATED FILAMENT SUPPLY**
- **OVERVOLTAGE & SHORT CIRCUIT PROTECTION.**
- **VOLTAGE & CURRENT PROGRAMMING.**
- **LOCAL AND REMOTE CONTROL.**
- **SAFETY INTERLOCK.**
- **OEM CUSTOMIZATION AVAILABLE.**

Remote: 0 to +10Vdc proportional from 0 to full output current.

Filament Supply:

Current: 0-3.5A, adjustable limit.

Voltage: 5.5 volt limit

Voltage Regulation:

Load: 0.01% of output voltage no load to full load.

Line: \pm 0.01% for \pm 10% change in input voltage.

Current Regulation:

Load: 0.01% of output current from 0 to rated voltage.

Line: \pm 0.01% for \pm 10% change in input voltage.

Ripple:

0.1% p-p of maximum rated output voltage.

Environmental:

Operational: 0° C to +50° C

Storage: -40° C to +85° C

Cooling:

Free convection for the 50W unit and 75W unit, Fan (15CFM) assisted for 100W unit.

Stability:

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

Voltage and Current Monitors:

0 to +10Vdc proportional from 0 to rated output.

Accuracy \pm 1%

Dimensions:

50KV unit: 5.31" H x 2.95" W x 8.07" D
(135.00mm x 75.00mm x 205.00mm)
50KV unit (Option USB/RS232/RS422/GB):
6.06" H x 2.95" W x 8.07" D
(154.00mm x 75.00mm x 205.00mm)
65KV unit: 5.31" H x 2.95" W x 9.01" D
(135.00mm x 75.00mm x 228.00mm)
65KV unit (Option USB/RS232/RS422):
6.06" H x 2.95" W x 9.01" D
(154.00mm x 75.00mm x 228.00mm)

XRN SELECTION TABLE - 10W 30W 50W

KV	10W		30W		50W	
	mA	MODEL	mA	MODEL	mA	MODEL
6	1.67	XRN6P10	5.00	XRN6P30	8.33	XRN6P50
10	1.00	XRN10P10	3.00	XRN10P30	5.00	XRN10P50
20	0.50	XRN20P10	1.50	XRN20P30	2.50	XRN20P50
30	0.33	XRN30P10	1.00	XRN30P30	1.67	XRN30P50
40	0.25	XRN40P10	0.75	XRN40P30	1.25	XRN40P50
50	0.20	XRN50P10	0.60	XRN50P30	1.00	XRN50P50
60	0.17	XRN60P10	0.50	XRN60P30	0.83	XRN60P50
65	0.15	XRN65P10	0.46	XRN65P30	0.77	XRN65P50

XRN SELECTION TABLE - 65W 75W 100W

KV	65W		75W		100W	
	mA	MODEL	mA	MODEL	mA	MODEL
6	10.83	XRN6P65	12.50	XRN6P75	16.67	XRN6P100
10	6.50	XRN10P65	7.50	XRN10P75	10.00	XRN10P100
20	3.25	XRN20P65	3.75	XRN20P75	5.00	XRN20P100
30	2.17	XRN30P65	2.50	XRN30P75	3.33	XRN30P100
40	1.63	XRN40P65	1.88	XRN40P75	2.50	XRN40P100
50	1.30	XRN50P65	1.50	XRN50P75	2.00	XRN50P100
60	1.08	XRN60P65	1.08	XRN60P75	1.67	XRN60P100
65	1.00	XRN65P65	1.00	XRN65P75	1.54	XRN65P100

ANALOG INTERFACE CONNECTOR

I/O	SIGNAL	
1	Monitor Return	Signal Ground
2	Voltage Monitor	0-10 volts=0 to full scale, Zout=1K Ω
3	Current Monitor	0-10 volts=0 to full scale, Zout=1K Ω
4	Interlock Output	Alternate Interlock Configurations
5	+10 Volt Reference	+10 Volts @ 1mA, maximum
6	Filament Monitor	1 volt = 1 amp, Zout = 1K Ω
7	Voltage Program Input	0-10 volts = 0 to full scale, Zin=10M Ω
8	Local Voltage Program	10 turn pot, screwdriver adjust
9	Filament Limit Setpoint	1 volt = 1 amp, screwdriver adjust
10	Current Program Input	0-10 volts = 0 to full scale, Zin=10M Ω
11	Local Current Program	10 turn pot, screwdriver adjust
12	Not used(+24VOut for Interlock)	(Optional Interlock configuration)
13	Not used(Interlock Coil)	(Optional Interlock configuration)
14	Filament Preheat Setpoint	1 volt = 1 amp, screwdriver adjust
15	Interlock Return	Interlock Ground

XRN POWER INPUT CONNECTOR

SIGNAL		
1	+24V Input	+24 Volts@ 5A, max
2	24V Return(Gnd)	Power Ground
3	Filament output	+5.5Volts@3.5A, max
4	Filament return	Ground

RS-232, RS-422 DIGITAL INTERFACE

J2	SIGNAL	
1	N/C	No Connection
2	TXD	Transmit Data
3	RXD	Receive Data
4	N/C	No Connection
5	SGND	Signal Ground
6	RA+	RA+ Input
7	RB-	RB- Input
8	TB-	TB- Output
9	TA+	TB+ Output

USB DIGITAL INTERFACE

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

LED INDICATORS

SIGNAL		
1	ARC	Arc fault occurs
2	OT	Over temperature occurs
3	OC	Over current occurs
4	UC	Low current occurs
5	OV	Over voltage occurs
6	UV	Low voltage occurs
7	HV	HV ON

OPTION MODEL

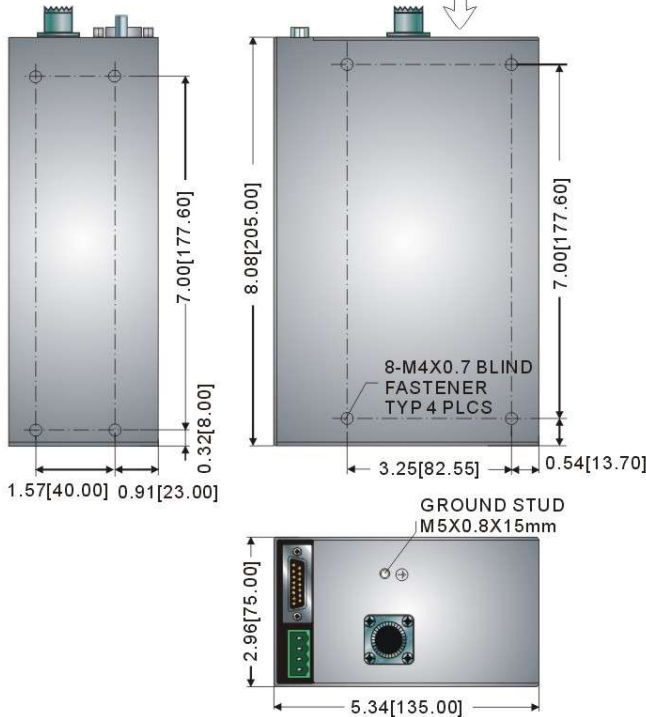
KV	mA	MODEL	W	KV	mA	MODEL	W
50	2	XRN50P50-2	50	60	2	XRN60P75-2	75
50	2	XRN50P75-2	75	60	2	XRN60P100-2	100
50	4	XRN50P75-4	75	65	2	XRN65P65-2	65
60	1	XRN60P60	60	65	2	XRN65P75-2	75
60	2	XRN60P60-2	60	65	2	XRN65P100-2	100

How To Order

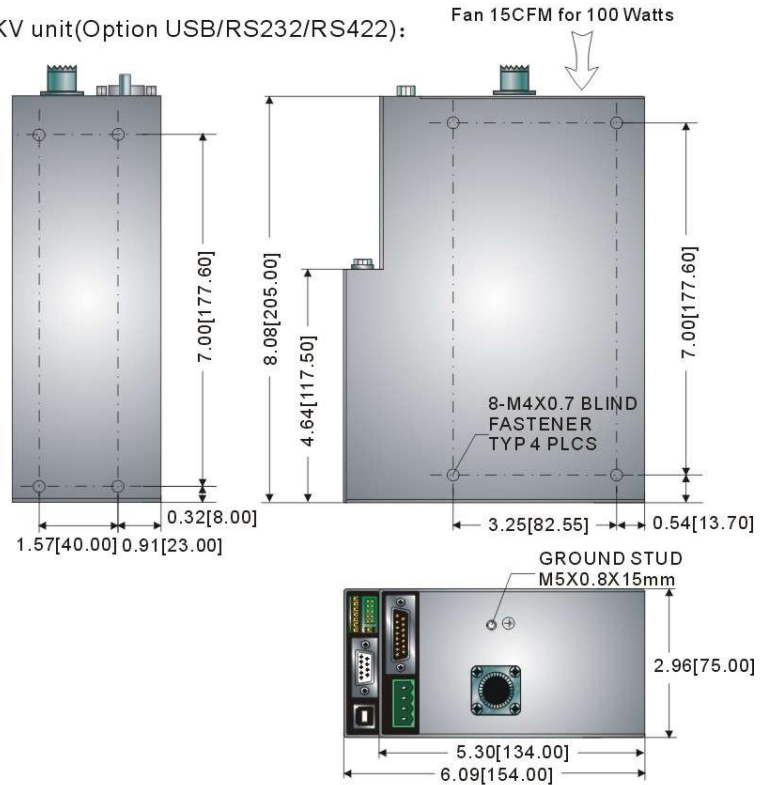
EXAMPLE:
 XRN50P75-2/USB/RS232
 XRN Series; 50 50KV; P positive high voltage;
 75 75 Watts; 2 2mA; USB USB Interface;
 RS232 RS-232 Interface.

DIMENSIONS: in. 【mm】

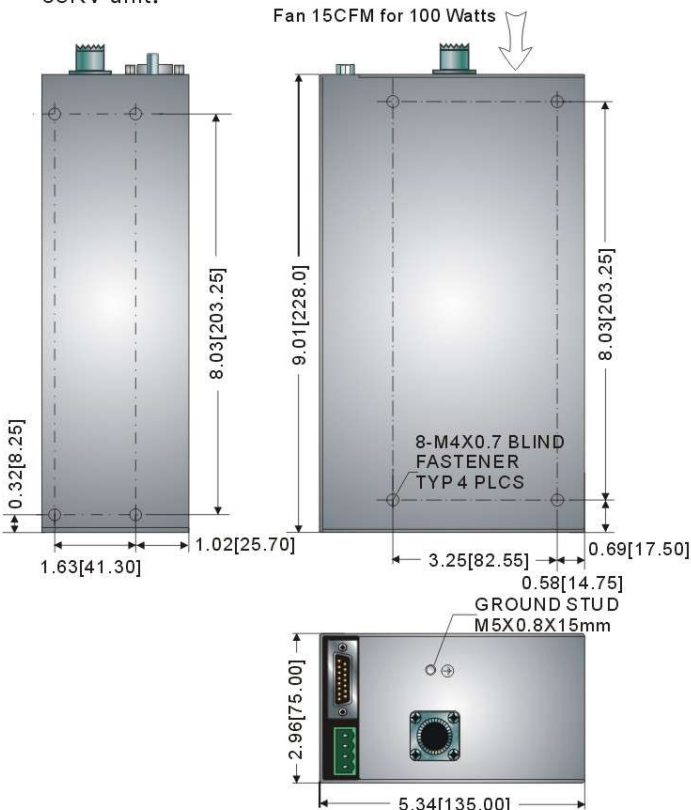
50KV unit:



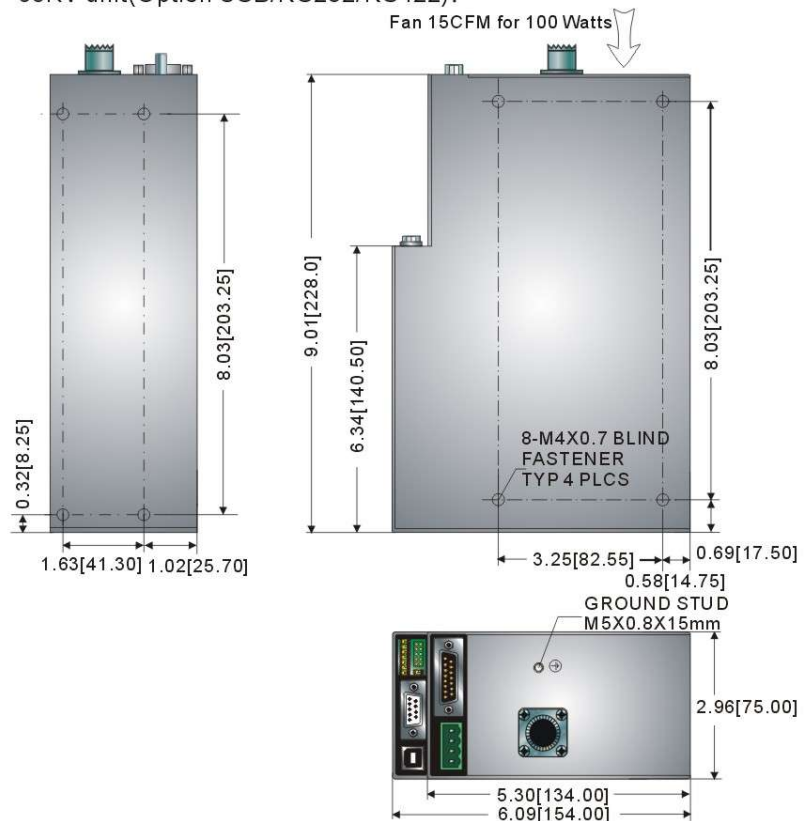
50KV unit(Option USB/RS232/RS422):



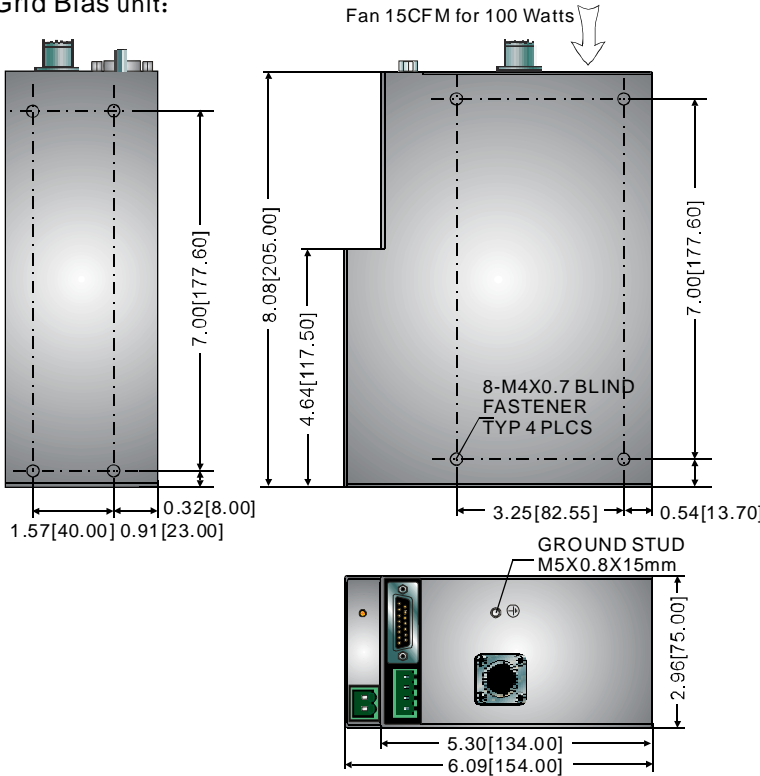
65KV unit:



65KV unit(Option USB/RS232/RS422):



Grid Bias unit:



Grid Bias Option(GB):

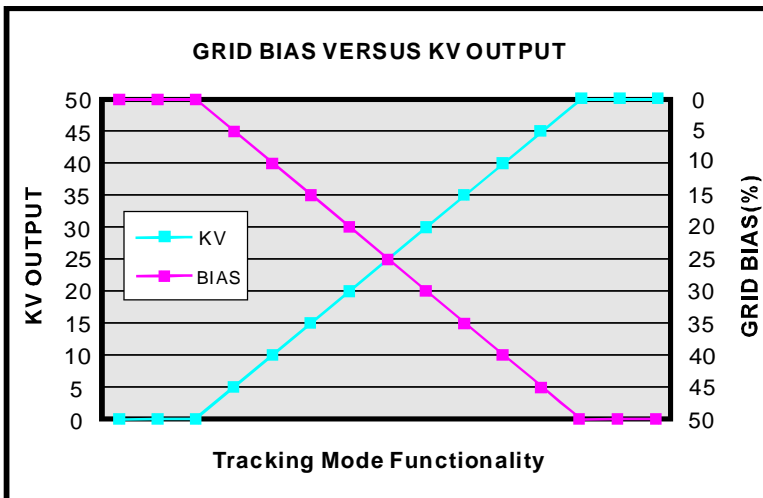
Plug-n-Play compatibility for Oxford' s Apogee X-Ray Tube Wisman' s Grid Bias Option for the XRN Series is specifically designed for popular commercially available grid bias X-Ray tubes. The Grid Bias voltage is developed via the use of separate integrated high frequency switching circuit, providing maximum flexibility and control. The Grid Bias output is a voltage regulated, current compliant to pology ideally suited for Wehnelt electrode applications. Arc and short circuit protection of the Grid Bias output prevents any damage due to transient events or installation errors.

Tracking Mode Operation:

Functioning in tracking mode the voltage monitor (0-10Vdc = 0 to 50KV) of the main high voltage output is internally connected to the Grid Bias programming input (0-10Vdc = 0 to -300Vdc of Grid Bias). Connected in this manner the Grid Bias output will track in a linearly pro-portional fashion the setting of the main KV output.

A front panel accessible multiturn potentiometer limits the maximum magnitude of Grid Bias output applied to the X-Ray tube, providing unparalleled flexibility.

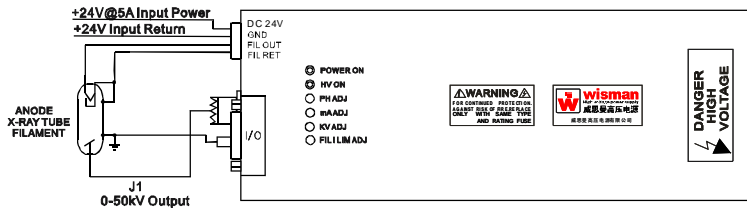
The output of the Grid Bias option is provided via an auxiliary two position Phoenix Contact terminal block, the mating connector is provided



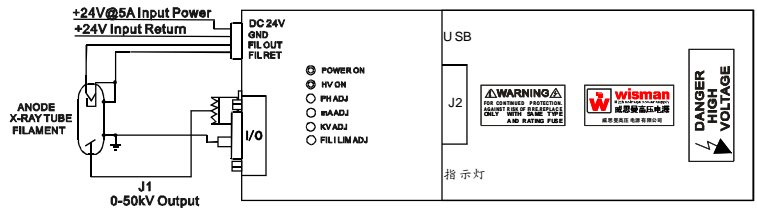
GRID BIAS SPECIFICATIONS

- Output Voltage:** 0 to -300Vdc
- Output Current:** 0.25mA, maximum
- Load Regulation:** 1% of output voltage, no load to full load
- Line Regulation:** 1% for a $\pm 10\%$ change in input voltage
- Ripple:** 1% of maximum rated voltage

The XRN Series is ideal for OEM applications requiring a competitively priced, precision X-ray tube high voltage module.

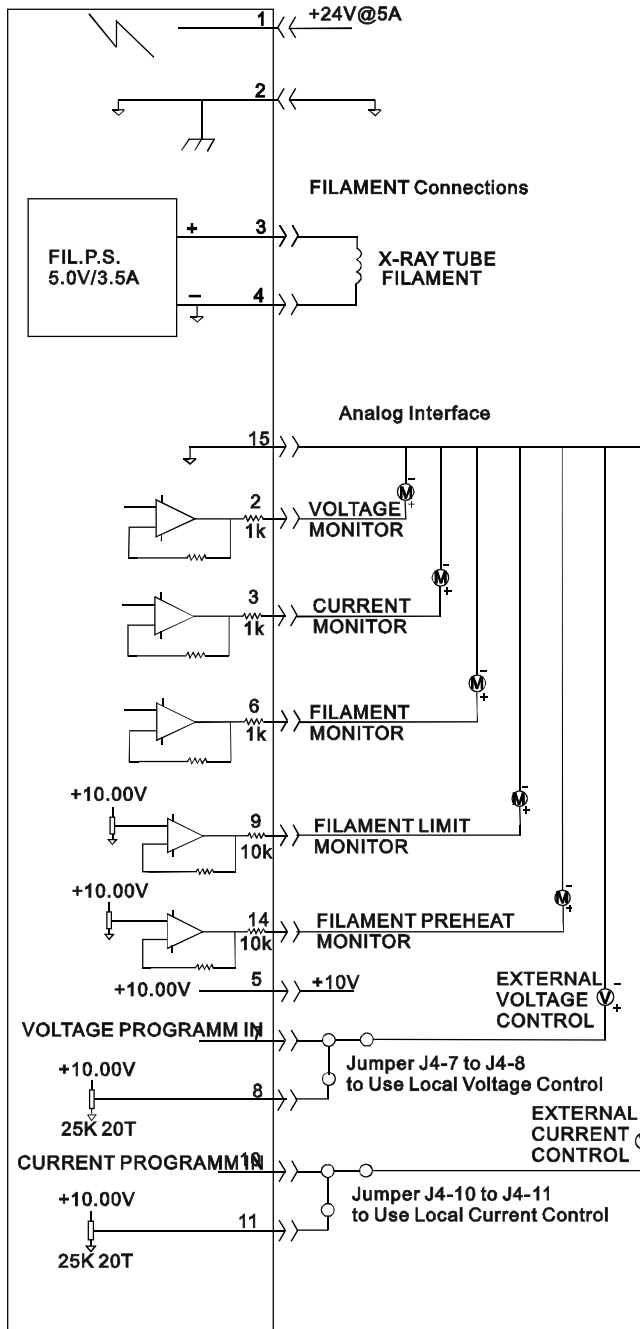


Typical XRN Operating Setup



Typical XRN(USB/RS232/RS422) Operating Setup

+24V Input Connections



Alternate Interlock Configurations

