



- OPTIONAL USB2.0, RS-232 OR RS-485 IS AVAILABLE
- 100kV, 2mA, 200WATT MAX
- ADJUSTABLE INTEGRATED FILAMENT SUPPLY
- OVERVOLTAGE, ARC & SHORT CIRCUIT PROTECTION
- VOLTAGE & CURRENT PROGRAMMING
- LOCAL AND REMOTE CONTROL
- SAFETY INTERLOCK
- OEM CUSTOMIZATION AVAILABLE



D X-RAY GENERATOR

## INTRODUCTION

Wisman's XRL series of regulated X-ray power supplies offer output voltages 20kV~160kV and incorporate a filament supply which provides regulated AC current adjustable between 0.3A~3.5A at 0~5.5Vdc. High voltage and filament current can be linearly ramped up. The XRL incorporates inside and outside potentiometer, computer programming, while providing Optional USB2.0, RS-232 or RS-485 digital interface and safety interlock, over voltage, arc, short circuit and overload protection.

## TYPICAL APPLICATIONS

X-Ray Fluorescence, X-Ray Diffraction, Plating Measurement, Crystal Inspection, Diamond Inspection, Mineral Analysis, Plastics Sorting, X-ray tubes, Capacitor Charging, Industrial applications, Electronic component aging, Insulation Test, Electrophoresis, Electrostatics Applications, Laser, Science, Laboratory Applications, ESD, Sulfur-detector, X-ray imaging, Non-destructive testing, Portable X-ray machine, Rohs detector, Life Science, Precious metal detector, Industry.

## XRL SELECTION TABLE

kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL
20	3.75	75	XRL20P75	50	1.5	75	XRL50P75	80	0.94	75	XRL80P75
	4.5	90	XRL20P90		1.8	90	XRL50P90		1.13	90	XRL80P90
	5.0	100	XRL20P100		2	100	XRL50P100		1.25	100	XRL80P100
	6.0	120	XRL20P120		2.4	120	XRL50P120		1.5	120	XRL80P120
	7.5	150	XRL20P150		3	150	XRL50P150		1.88	150	XRL80P150
	10.0	200	XRL20P200		4	200	XRL50P200		2.5	200	XRL80P200
30	2.5	75	XRL30P75	60	1.25	75	XRL60P75	90	0.83	75	XRL90P75
	3	90	XRL30P90		1.5	90	XRL60P90		1	90	XRL90P90
	3.33	100	XRL30P100		1.67	100	XRL60P100		1.11	100	XRL90P100
	4	120	XRL30P120		2	120	XRL60P120		1.33	120	XRL90P120
	5	150	XRL30P150		2.5	150	XRL60P150		1.67	150	XRL90P150
	6.67	200	XRL30P200		3.33	200	XRL60P200		2.22	200	XRL90P200
40	1.88	75	XRL40P75	70	1.07	75	XRL70P75	100	0.75	75	XRL100P75
	2.25	90	XRL40P90		1.29	90	XRL70P90		0.9	90	XRL100P90
	2.5	100	XRL40P100		1.43	100	XRL70P100		1	100	XRL100P100
	3	120	XRL40P120		1.71	120	XRL70P120		1.2	120	XRL100P120
	3.76	150	XRL40P150		2.14	150	XRL70P150		1.5	150	XRL100P150
	5	200	XRL40P200		2.86	200	XRL70P200		2	200	XRL100P200

## XRL SELECTION EXAMPLE

XRL	100	P	200	VIP	10	VIM	10	TR	AX	LRX
Series Number	Maximum Output Voltage (kV)	Output Polarity P: Positive	Maximum Output Power (W)	Option Voltage/Current Program	Option 1=0:0~+10Vdc 0 full scale 5:0~+5 Vdc =0 to scale	Option Voltage/Current Monitor	Option 10:0~+10 Vdc =0 to full scale 5:0~+5 Vdc =0 to full scale	Option USB2.0 RS232 RS485	Option X=0,1,2,3,5,8,N arc(N=ARC, does not shutdown. 0= No ARC)	Option X=12,3,4,5 1:0.25% 2:0.1%, 3:0.006%, 4:0.003%, 5:0.001%



## SPECIFICATIONS

PARAMETER	DESCRIBE			
Input	+48Vdc±2%, 6.25A maximum.			
Output	20kV,30kV, 40kV, 50kV, 60kV, 70kV, 80kV,90kV, 100kV, Maximum output Voltage option.75W,90W,100W,120W,150W,200W output power optional.			
Stability	0.01% per hours, 0.02% per 8 hours after 1/2 hour warm-up.			
Temperature Coefficient	≤25ppm/°C.			
Ripple	0.1% p-p of maximum rated output voltage.			
Voltage/Current Monitor	0 ~ +10Vdc corresponds to 0 to maximum output, Zout=10kW, accuracy:±1%.			
Voltage Local Programming	Internal potentiometer to set voltage from 0 to maximum output voltage.			
Voltage Remote Programming	0 ~ +10Vdc proportional from 0 to maximum output voltage, Zin=10MW.			
Current Local Programming	Internal potentiometer to set beam current between from 0 to full output voltage.(OPTION)			
Current Remote Programming	0 ~ +10Vdc proportional from 0 to full.(OPTION)			
Voltage Load Regulation	0.01% ( no load to full load change).			
Voltage Line Regulation	±0.01% (input voltage line change±10%).			
Current Load Regulation	0.01% ( no load to full load change).			
Current Line Regulation	±0.01% (input voltage line change±10%).			
DC Filament Supply	Current: 0.3~3.5A, adjustable Voltage: 0~5.5Vdc.Providing filament preheat, No filament output when output less 30% than rated output			
Operating Temperature	0°C~+50°C.			
Storage Temperature	-40°C~+85°C.			
Cooling	Free convection for P≤100W, Fan (30CFM) assisted for P>120W,except 40kV.			
Humidity	20%~85% RH, non-condensing.			
Dimensions	20kV~40kV	4.72" H x 4.72" W x6.54" D (120mm x 120mm x166mm).	Weight	3.9kg
	40kV~70kV	5.51" H x 3.94" W x9.06" D (140mm x 100mm x230mm).		4.8kg
	70kV~100kV	6.10" H x 7.48" W x15.94" D (155mm x 190mm x405mm).		15kg

## XRL POWER INPUT/ FILAMENT OUTPUT CONNECTOR

PIN	SIGNAL	PIN	SIGNAL
1	GND Filament Ground	3	GND Power Ground
2	FIL Filament Output	4	+48Vdc +48V Input

## ANALOG INTERFACE CONNECTOR

I/O	SIGNAL	PARAMETER
1	GND	Ground
2	Voltage Monitor	0 ~ +10Vdc=0 to full scale, Zout=10KΩ
3	Current Monitor	0 ~ +10Vdc=0 to full scale, Zout=10KΩ
4	Interlock Output	Connect to pin 1 to HV enable supply
5	+10Vdc Reference	+10Vdc at 1mA ,maximum
6	Filament Monitor	1Vdc=1A, Zout=10KΩ
7	Voltage Program In	0 ~ +10Vdc=0 to full scale, Zin=10MΩ
8	Local Voltage Program	0 ~ +10Vdc,screwdriver adjust
9	Power Supply Fault	0=Fault
10	Reset	Reset=0
11	Interlock output	Optional Interlock configuration+15Vdc
12	Interlock coil	Connect to pin 12 to HV enable supply
13	Local Current Program	10 turn pot, screwdriver adjust
14	Current Program In	0 ~ +10Vdc=0 to full scale, Zin=10MΩ
15	Interlock Return	Ground

## RS-232/RS-485 DIGITAL INTERFACE <sup>D</sup>

PIN	SIGNAL	PIN	SIGNAL
1	N/C	6	N/C
2	TXD/Transmit Data	7	RS-485B
3	RXD/Receive Data	8	N/C
4	N/C	9	RS-485A
5	SGND		

## XRL LED INDICATORS <sup>D</sup>

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

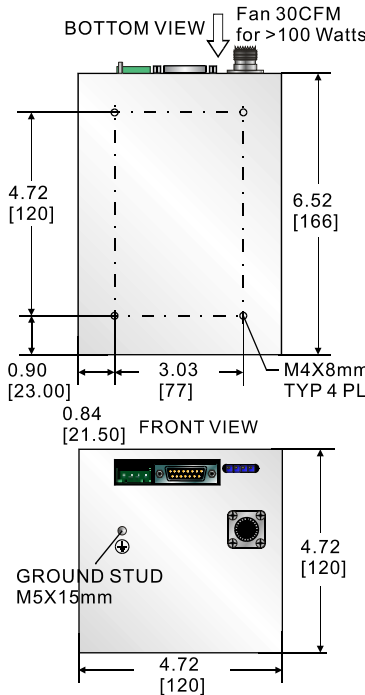
## USB DIGITAL INTERFACE <sup>D</sup>

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

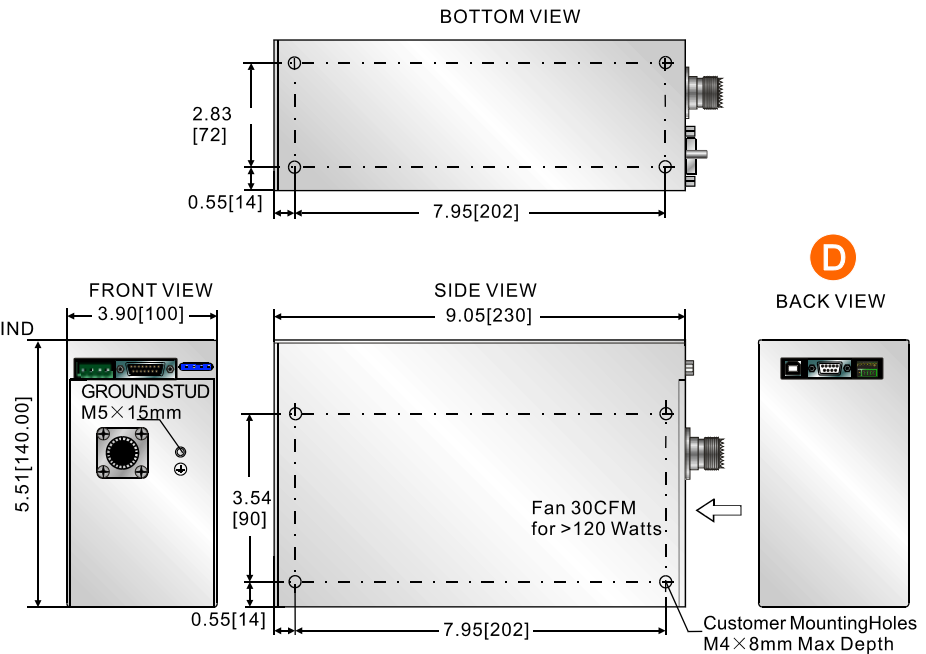
## DIMENSIONS

Unit:mm[in.]

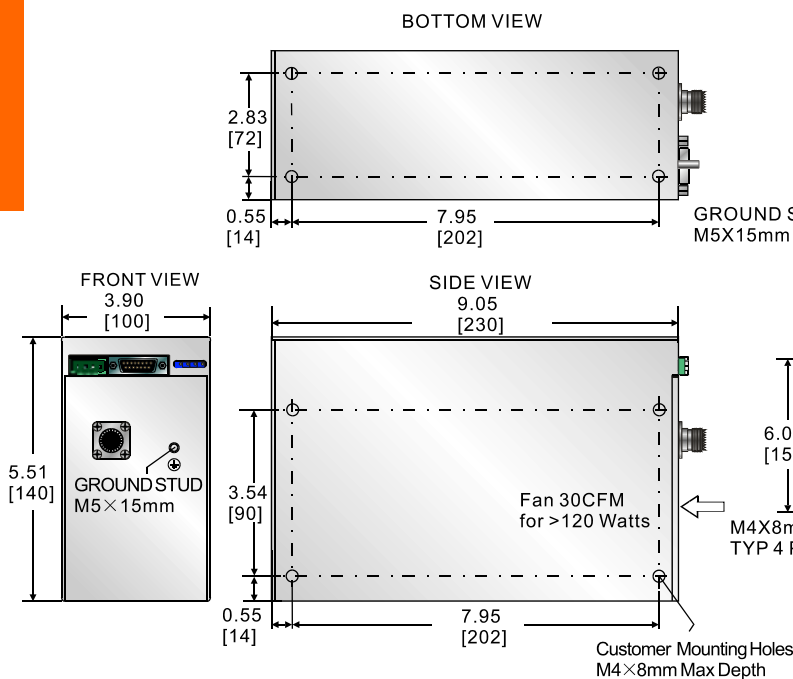
20kV~40kV:



40kV~70kV(USB2.0/RS-232/RS-485):



40kV~70kV:



70kV~100kV(USB2.0/RS-232/RS-485):

