- 160kV,225kV,320kV AND 450kV MODELS
- COMPLETE X-RAY GENERATOR PACKAGE
- POWER FACTOR CORRECTED AC INPUT CIRCUITRY
- INTEGRATED DUAL FILAMENT SUPPLIES
- DIGITAL INTERFACE-ETHERNET AND RS-232
- EXCELLENT STABILITY AND REGULATION
- OEM CUSTOMIZATION AVAILABLE

D X-ray Generator

INTRODUCTION

Wisman's NDT series of X-Ray high voltage power supplies sets the standard for compact 1.8kW to 4.5kW, high performance X-Ray inspection generators. Spanning an output voltage range of 160kV to 450kV in negative, positive or bipolar output configurations, there's a model available for virtually every application requirement. Active power factor correction circuitry reduces input current requirements while minimizing line related EMI. Wisman's proprietary inverter topology allows for unprece-dented efficiencies and power densities. A solid encapsulated high voltage section further reduces size and weight and provides reliable, maintenance free operation. DSP based SMT control circuitry provides your choice of Ethernet and RS-232 along with analog interfacing, simplifying OEM system integration. The two DC output, current regulated filament power supplies are controlled via sophisticated emission current regulation circuitry to provide accurate and stable X-Ray tube currents. Comprehensive fault diagnostic circuitry, and Arc Sense, Arc Quench and Arc Count functionality is also incorporated into this compact, space saving X-Ray generator.

TYPICAL APPLICATIONS

Non Destructive Testing、X-Ray Scanning、Security Applications、Medical Applications.

NDT SPECIFICATIONS

kV	mA	P(kW)	MODEL	Ripple（P-P）	kV	mA	P(kW)	MODEL	Ripple（P-P）
160	0~30	1.8	NDT160*1.8	<0.025%	225	0~30	1.8	NDT225*1.8	<0.025%
	0~30	2.25	NDT160*2.25	<0.025%		0~30	2.25	NDT225*2.25	<0.025%
320	0~50	3.6	NDT320P&N3.6	<0.025%	450	0~30	3.6	NDT450P&N3.6	<0.025%
	0~50	4.5	NDT320P&N4.5	<0.025%		0~30	4.5	NDT450P&N4.5	<0.025%

NDT SELECTION EXAMPLE

NDT	450	*	4500	VIP	10	VIM	10	TR
Series Number	Maximum Output Voltage (kV)	Output polarity N:Negative P:Positive PN:Dual Polarity	Maximum Output Power (W)	Option Voltage Program Current Program Voltage/Current Program	Option 0-10Vdc =0 to full scale	Option Voltage Monitor Current Monitor Voltage/Current Monitor	Option 0-10Vdc =0 to full scale	Option TR:RS-232 AB:RS-485 ET:ETHERNET

Note: Positive Polarity is without filament power supply.

D X-ray Generator

SPECIFICATIONS

SIGNAL	PARAMETERS
Input Voltage	180-264Vac, single phase, 47-63 Hertz, active power factor corrected input to ⩾0.98.
Input Current	1.8kW, 2.25kW, 3.6kW and 4.5kW models: <30 amps
Output Voltage	160kV，225kV, ±160kV，±225kV，Accuracy:0.25%.
Output Voltage Stability	⩽0.1% per 8 hours, after 1 hour warm up.
Temperature Coefficient	⩽±25ppm/℃.
Ripple	See “model selection” table.
Voltage/Current Monitor	0 ~ +10 Vdc corresponds to 0 to maximum output, Zout=4.99kW, accuracy: ± 1%.
Voltage Remote Programming	0 ~ +10Vdc proportional from 0 to maximum output voltage, Zin=10MW.
Current Remote Programming	0 ~ +10Vdc proportional from 0 to maximum output current, Zin=10MW.
Voltage Load Regulation	1.8kW, 2.25kW, 3.6kW, 4.5kW： ±0.05% (no load to full load change).
Voltage Line Regulation	1.8kW, 2.25kW, 3.6kW, 4.5kW： ±0.05% (over specified input voltage range).
Current Load Regulation	1.8kW, 2.25kW , 3.6kW, 4.5kW： ±0.05% (input voltage line change30% - 100%).
Current Line Regulation	1.8kW, 2.25kW , 3.6kW, 4.5kW： ±0.05% (over specified input voltage range).
Emission CurrentAccuracy	0.25%.
Emission Current Stability	⩽100ppm/℃.
Filament Supply	0-6 amps at a compliance of 10Vdc, maximum.
Filament Dual Focal Spot	Small and large, selectable via interface signal.
Filament Configuration	DC filament drive. Closed loop emission control regulates filament setting to provide desired X-Ray tube emission current.
Control Interface	Analog, Ethernet and RS-232 are standard.
Operating Temperature	0℃~ +50℃.
Storage Temperature	-40℃~+85℃.
Humidity	20%~85%RH, non-condensing.
Dimensions	160kV： 11.95″ H x 11.95″ W x 18.08″ D (304mm x 304mm x460mm).
	225kV： 12.97″ H x 12.97″ W x 23.58″ D (330mm x 330mm x600mm).
	320kV： Double 11.95″ H x 11.95″ W x 18.08″ D (304mm x 304mm x460mm).
	450kV： Double 12.97″ H x 12.97″ W x 23.58″ D (330mm x 330mm x600mm).

NDT AC INPUT POWER

PIN	SIGNAL	
A	GND	GND
B	LINE1	220Vac,±20%，50/60Hz,@25A
C	LINE2	220Vac,±20%，50/60Hz,@25A

NDT HV CONNECTOR

PIN	SIGNAL	
C	HV Output	NDT HV Output
S	Small Filament Output	0~6A@10Vdc
L	Large Filament Output	0~6A@10Vdc

D X-ray Generator

RS-232/RS-485 DIGITAL INTERFACE

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

ETHERNET DIGITAL INTERFACE Ⓓ

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

J2 ANALOG INTERFACE-25 PIN D CONNECTOR

PIN	SIGNAL	PARAMETERS
1	Power Supply Fault	Low, sum of faults, HVPS detected a fault, open collector, 50V @ 10mA max
2	kV Program	0 ~+10V FS Z in = 10M ohms
3	Filament Enable*	Active low, turn filament ON
4	mA Program	0 ~+10V FS Z in = 10M ohms
5	Signal Ground	Ground
6	kV Monitor	0 ~+10V FS Z out = 4.99k ohms
7	mA Monitor	0 ~+10V FS Z out = 4.99k ohms
8	Filament Current Monitor*	0 ~+10V FS Z out = 4.99k ohms
9	Filament ON*	Filament ON status, low, filament is ON open collector 50V, @ 10mA max
10	Filament Limit L/S Ref.*	0 ~+10V FS Z in = 10M ohms
11	Filament Preheat L/S Ref.*	0 ~+10V FS Z in = 10M ohms
12	Interlock 1	Active low, interlock is closed, safe to enable HV
13	Interlock 2	Active low, interlock is closed, safe to enable HV
14	HVPS RDY	Low = HVPS ready, Open collector, 50V @ 10mA max
15	X-Ray ON	X-Ray ON status, low = X-Rays are ON open collector, 50V @ 10mA max
16	Filament Control*	Active low, filament is regulated by ECR (HV must be ON). Not active, the filament is regulated by the preheat reference
17	Filament L/S Select	Filament selection large or small, low = small spot is selected
18	Filament L/S Confirm	Open collector, 50V @ 10mA max Filament selection confirm, low = small spot is selected
19	X-Ray Enable	+24Vdc = X-Ray ON, connect to pin 14 with dry contact relay
20	+24Vdc	+24Vdc @ 100mA, maximum
21	Interlock Status	Low, interlocks are closed, can enable HV open collector, 50V @ 10mA max
22	Reset	Active low, minimum 10mS transition
23	X-Ray ON Pre-Warn	Pre-warning, low, before X-Ray ON open collector, 50V @ 10mA max
24	Arc fault	Low, arc fault, the HVPS has detected an arc,open collector, 50V @ 10mA max
25	GND	Power ground

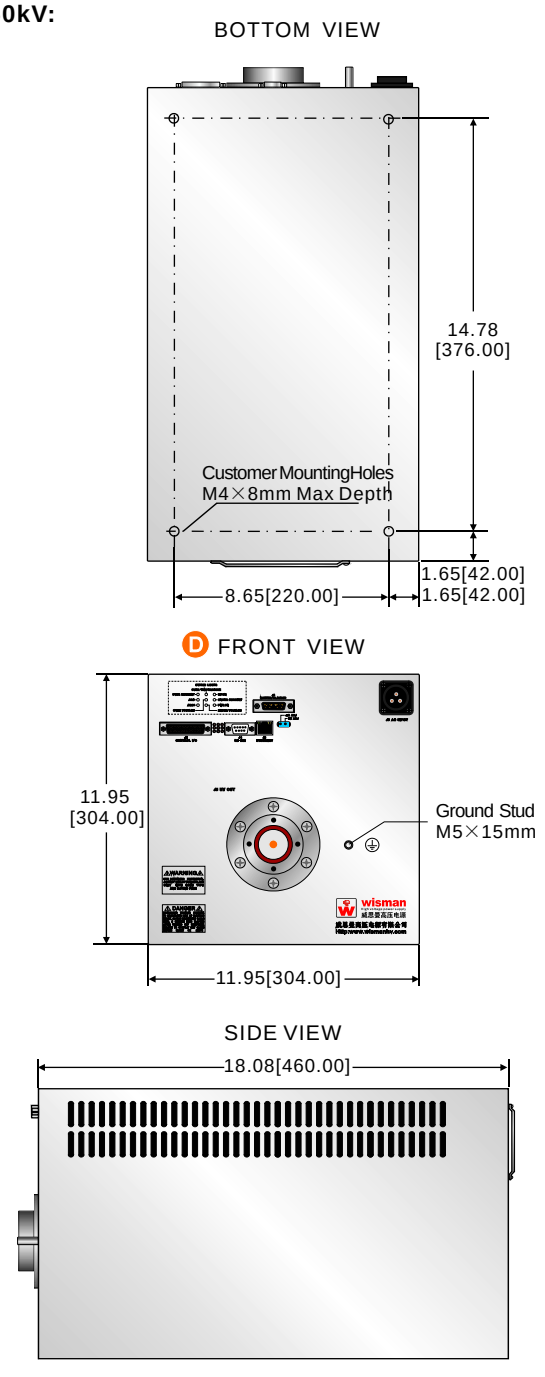
*Not active on positive models

D X-ray Generator

DIMENSIONS

Dimension：Inch[mm]

160kV:



225kV: