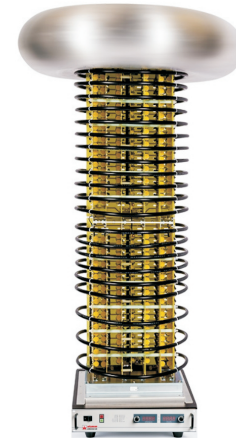




- POWER FACTOR CORRECTED
- PULSE-WIDTH MODULATION
- AIR INSULATED
- CONSTANT VOLTAGE/CURRENT OPERATION
- CURRENT TRIP
- LOW RIPPLE
- TIGHT REGULATION
- ARC AND SHORT CIRCUIT PROTECTED
- OEM CUSTOMIZATION AVAILABLE



E
CUSTOM APPLICATION

INTRODUCTION

Wisman's PA family of power supplies are sophisticated 2 kW, open stack, power supplies with extremely low ripple and noise. They are air insulated fast response units with tight regulation. They are designed to meet the growing demands from both users and electric utilities for switching supplies with excellent input power factors that draw harmonic currents below those specified in EN61000-3-2.

TYPICAL APPLICATIONS

Accelerator, Capacitance characteristics, Electron beam, Ion beam, X-ray systems, Ion and chemical vapor deposition, Electrostatic precipitation.

PA SELECTION TABLE

kV	mA	P(W)	MODEL	MAX STORED ENERGY(J)	HIGH FREQ. RIPPLE(P-P)	LINE FREQ. RIPPLE(P-P)
200	10.00	2000	PA200*2000	70	100	10
250	8.00	2000	PA250*2000	81	125	12.5
300	6.00	1800	PA300*1800	100	150	15
350	4.50	1575	PA350*1575	112	175	17.5
400	3.50	1400	PA200*1400	131	200	20
450	3.00	1350	PA250*1350	150	225	22.5

PA SELECTION EXAMPLE

PA	450	*	2000	VIP	10	VIM	10	ET	200	SSX	ZS
Series Name	Max. Output Voltage (kV)	Output Polarity P: Positive Polarity N: Negative Polarity R: Polarity Reversible	Max. Output Power (W)	OPTION VP: Voltage Programming IP: current programming VIP: Voltage and current programming	OPTION 10: 0~+10Vdc =0 to max. output 5 : 0~+5Vdc =0 to max. output	OPTION Vm: Voltage Monitor IM: current monitor VIM: Voltage and current monitor	OPTION 10: 0~+10Vdc =0 to max. output 5 : 0~+5Vdc =0 to max. output	OPTION ET: Ethernet RT: Rs-232 AB: Rs-485	OPTION 180~220VAC 48~63HZ Derate output current by 10%	OPTION Customized slow start X=5, 15, 20, or 30 seconds ±20%	OPTION Zero start interlock



PA SPECIFICATIONS

ISO9001:2008

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CUSTOM APPLICATION

PARAMETER	DESCRIBE
Input Voltage	198~264V RMS,48~63Hz.
Output Voltage	200~450kV Maximum output Voltage option,Maximum output power 2000W.
Efficiency	Typically 80% at full load.Power factor >0.995.
Stability	0.01% per hour after 1/2 hour warm-up, 0.05% per 8 hours.
Temperature Coefficient	0.01% /°C.
Ripple	<0.05%P-P
Voltage Monitor	0~+10Vdc equivalent to 0 to rated voltage. Zout=10kΩ,Accuracy:0.5% of reading +0.2% of rated.
Current Monitor	0~+10Vdc equivalent to 0 to rated current.Zout=10kΩ,Accuracy:1% of reading +0.1% of rated.
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.
Current Local Programming	Internal potentiometer to set current from 0 to maximum output current.
Current Remote Programming	0~+10Vdc proportional from 0 to maximum output current
Voltage Load Regulation	0.005% (no load to full load change).
Voltage Line Regulation	±0.005% (input Voltage line change±2%).
Current Load Regulation	0.1% (no load to full load change).
Current Line Regulation	±0.005% (input Voltage line change±2%).
Operating Temperature	-20°C~+40°C.
Storage Temperature	-40°C~+85°C.
Dimensions	driver chassis: 8.43"H X 20.31" W X 22.56"D (214.1mm X 515.9mm X573.0mm).
	remote control unit:5.218"H X 19.00" W X 5.00"D (132.54mm X 482.6mm X127mm).
Weight	

PA ANALOG INFORMATION

RS-232/RS-485 DIGITAL INTERFACE ^D

JB3	SIGNAL	JB3	SIGNAL
1	N/C	6	N/C
2	TXD/Transmit Data	7	RS485B(OPTION)
3	RXD/Receive Data	8	N/C
4	N/C	9	RS485A(OPTION)
5	SGND		

ETHERNET DIGITAL INTERFACE ^D

JB2	SIGNAL	JB2	SIGNAL
1	RX+	5	N/C
2	RX-	6	TX-
3	TX+	7	N/C
4	N/C	8	N/C



PA ANALOG INFORMATION

ISO9001:2008

JB1	SIGNAL	PARAMETER
1	Power Supply Common	Power Supply Ground
2	Reset/HV Inhibit	Normally open, Low = Reset/Inhibit
3	External Interlock	+24Vdc @ open, <25mA @ closed
4	External Interlock Return	Return for External Interlock
5	mA Test Point	0~10Vdc=0~100% rated output, Zout=10k , 1% of reading +0.1% of rated
6	kV Test Point	0~10Vdc=0~100% rated output, Zout=10k , 0.5% of reading +0.2% of rated
7	+10Vdc Reference Output	+10Vdc @ 1mA
8	mA Program Input	0~10Vdc = 0~100% rated output, Zin=10M
9	Local mA Program Output	0~10Vdc = 0~100% rated output, front panel pot
10	kV Program Input	0~10Vdc = 0~100% rated output, Zin=10M
11	Local kV Program Output	0~10Vdc = 0~100% rated output, front panel pot
12	Remote Power On Output	+24Vdc @ open, <25mA @ closed
13	Remote Power On Return	Return for Remote Power On
14	Remote HV Off	+24Vdc @ open, <25mA @ closed, connect to pin15 for front panel operation
15	Remote HV Off/On Common	HV On/Off Common
16	Remote HV On	+24Vdc @ open, <25mA @ closed, connect to pin15 for front panel operation
17	HV Off Indicator	Low = HV Off
18	HV On Indicator	Low = HV On
19	Power Supply Common	Supply Ground
20	+24Vdc Output	+24Vdc @ 100mA, maximum
21	Voltage Mode Status	Open Collector, Low = Active
22	Current Mode Status	Open Collector, Low = Active
23	Power Mode Status	Open Collector, Low = Active(Optional)
24	Interlock Closed Status	Open Collector, Low = Active
25	Spare	Spare
26	Spare	Spare
27	Spare	Spare
28	Spare	Spare
29	Over Power Fault	Open Collector, Low = Active
30	Over Voltage Fault	Open Collector, Low = Active
31	Over Current Fault	Open Collector, Low = Active
32	System Fault	Open Collector, Low = Active
33	RGLT Error Fault	Open Collector, Low = Active
34	Arc	Open Collector, Low = Active
35	Over Temp Fault	Open Collector, Low = Active
36	AC Fault	Open Collector, Low = Active
37	Interlock	connect to pin19 for Interlock closed
38	Spare	Spare
39	Spare	Spare
40	Pull Voltage	Option connect to pin 44 or pin 45
41	Spare	Spare
42	Spare	Spare
43	Spare	Spare
44	+5Vdc Output	+5Vdc @ 100mA, maximum
45	+15Vdc Output	+15Vdc @ 100mA, maximum
46	-15Vdc Output	-15Vdc @ 10mA, maximum
47	RS232 Tx	RS232 Tx
48	RS232 Rx	RS232 Rx
49	RS232 GND	RS232 GND
50	Power Supply Common	Power Supply Ground

CUSTOM APPLICATION



PA SPECIFICATIONS

ISO9001:2008

Specifications apply from 5% to 100% rated voltage. (Operation is guaranteed down to zero voltage with a slight degradation of performance.)

INPUT: 198-264 V RMS single phase, 48-63 Hz, 2600 VA maximum at full load. A three position terminal block with protective cover is provided on the rear panel of the driver chassis.

OUTPUT: Continuous stable adjustment from 0 to rated voltage or current by panel mounted 10-turn potentiometers with 0.05% resolution, or by external 0 to 10V signals is provided. Repeatability better than 0.1% of setting. Voltage accuracy is 0.5% of setting +0.2% of rated.

VOLTAGE REGULATION: Better than $\pm 0.005\%$ for specified line variations and 0.005% for no load to full load variations.

CURRENT REGULATION: Better than $\pm 0.005\%$ for specified line variations and 0.1% from short circuit to rated voltage at any load condition, when in current regulation mode. When in current trip mode the HV output will disable and latch off when the load current reaches the programmed current level. Reset is accomplished by either cycling the AC power or HV ON/OFF buttons or by toggling the HV enable signal. A switch located on the rear panel of the remote control chassis allows the selection of current limit or current trip operation.

STORED ENERGY: Stored energy varies with output voltage and is tabulated in the models chart.

RIPPLE: Ripple consists of two major components, inverter switching frequency components and line frequency related components. The inverter frequency component is dependent on the amount of load current drawn. The line frequency related component is determined by the amount of power delivered to the load. The maximum values for both components are specified in the models chart.

Voltage Rise/Decay Time Constant: 400 ms typical using either the HV ON switch or remote programming with a minimum 1.7 mA resistive load.

PROTECTION: Automatic current regulation protects against all overloads, including arcs and short circuits. Thermal switches protect against thermal overload. Fuses, surge-limiting resistors and low energy components provide ultimate protection.

ARC QUENCH: An arc quench feature provides sensing of each load arc and quickly inhibits the HV output for approximately 0.25 seconds after each arc.

ARC COUNT: Internal circuitry senses the number of arcs caused by external load discharges. If the rate of consecutive arcs exceeds approximately one arc per second for 5 arcs, the supply will turn off for approximately 5 seconds to allow clearance of the fault. After this period the supply will automatically return to the programmed kV value with the rise time constant indicated. If the load fault still exists the above cycle will repeat.

REMOTE CONTROL UNIT: A separate control panel chassis is provided which contains all the control functions. The front panel of this assembly contains: separate 10-turn controls with locking vernier dials used to set the voltage and current levels, High Voltage ON switch, High voltage OFF/Reset switch and an AC power on/off switch and indicator. LED's indicate when the high voltage is on, output polarity, interlock status, fault status, and whether the supply is operating in a voltage or current regulating mode. Output levels are indicated by voltage and current digital meters. The rear panel of this assembly contains: AC power on indicator, ground stud, driver/control chassis interface connectors, current limit/current trip selector switch, and remote user interface terminal strip.

The signals provided on the remote user interface connector are as follows:

INPUT: Output voltage and current program signals, and high voltage enable.

OUTPUT: Output voltage and current monitor signals, a +10V reference source, and a high voltage status signal.

REMOTE HV ENABLE: 0~1.5V=OFF, 2.5~15V=ON.

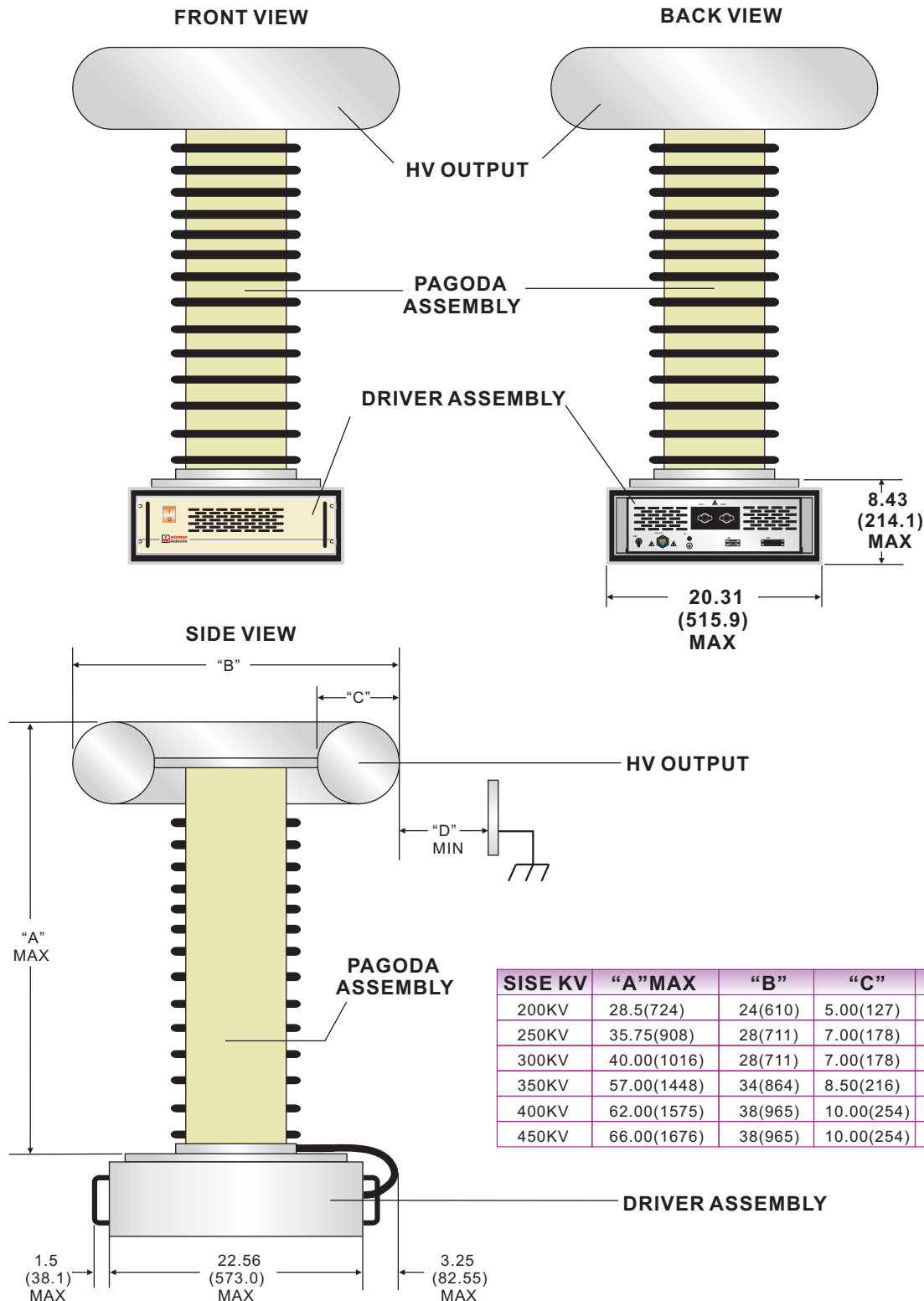
EXTERNAL INTERLOCK: Open = off, closed = on. Latching with reset via the HV ON switch or HV enable signal. The front panel indicator is illuminated when the interlock is open. Interlock connections are provided on a terminal strip on the rear panel of the driver chassis.



DIMENSIONS

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HIGH VOLTAGE STACK AND DRIVE ASSEMBLY

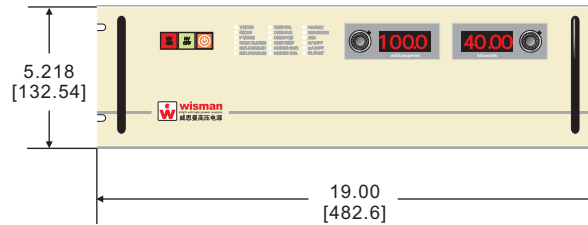


SIZE KV	"A" MAX	"B"	"C"	"D"
200KV	28.5(724)	24(610)	5.00(127)	24(610)
250KV	35.75(908)	28(711)	7.00(178)	31(787)
300KV	40.00(1016)	28(711)	7.00(178)	38(965)
350KV	57.00(1448)	34(864)	8.50(216)	45(1143)
400KV	62.00(1575)	38(965)	10.00(254)	52(1321)
450KV	66.00(1676)	38(965)	10.00(254)	60(1524)

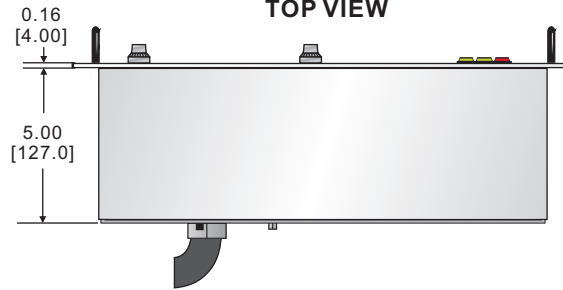
CUSTOM APPLICATION

CONTROL ASSEMBLY

FRONT VIEW



TOP VIEW



BACK VIEW

