



Figure 1. Physical Photo of AHVACN20KVR5MABT

**FEATURES**

- High precision
- High efficiency
- High output voltage stability
- Linear modulation of output voltage
- Low cost
- Overcurrent protection
- Short circuit protection
- Digital display for output voltage

**APPLICATIONS**

AHVACN20KVR5MABT, is designed for achieving AC-DC conversion from AC voltage to high DC voltage. High voltage power supply is widely used in industrial measurement and control, energy spectrum analysis, and medical equipment such as: X-ray machine, vacuum/plasma processing, semiconductor fabrication equipment, analytical instrumentation, medical diagnostic and therapeutic systems, test equipment, and research and academic applications, etc.

**DESCRIPTION**

Connect AC 90~230V input, and then power on. When the potentiometer is in “0”, open the high voltage switch, and then adjust the potentiometer clockwise. Observe the digital display readings, and high voltage power supply output

voltage = the reading × 100V. When the required voltage is achieved, then rotate the potentiometer lock clockwise to lock the potentiometer. This prevents the output voltage changes caused by rotating the potentiometer by accident. High voltage connection wire is used for high voltage output.

**SAFETY PRECAUTIONS**

High voltage power supply must be connected to ground reliably.

Do not touch the high voltage wire, unless the high voltage power supply is powered off, and the load and internal capacitors are fully discharged.

When the high voltage power supply is powered off, wait for another 5 minutes for fully discharging all the capacitors inside the power supply.

Do not operate the power supply in humid environment, and do not connect the operator to ground.

The internal protection circuit is provided in the high voltage power supply, but the high voltage short circuit shall be avoided.

Make sure the circuit is insulated perfectly, especially between the high voltage output and the surroundings so as to avoid electronic shock.



**SPECIFICATIONS**

Table 1. Characteristics.

T<sub>A</sub> = 25°C, unless otherwise noted

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit/Note
AC Input Voltage	VPS		90	110	230	V <sub>AC</sub>
Quiescent Input Current	I <sub>INQQ</sub>	I <sub>OUT</sub> = 0mA	120	130	140	mA
Full Load Input Current	I <sub>INFLD</sub>	I <sub>OUT</sub> = 0.5mA	150	200	250	mA
Input Voltage Regulation Ratio	ΔV <sub>OUT</sub> /ΔVPS	VPS = 90V ~ 230V		0.05		%
Output Voltage	V <sub>OUT</sub>	I <sub>OUT</sub> = 0 ~ 0.5mA	0		-20000	V
Maximum Output Current	I <sub>OUTMAX</sub>	VPS = 90V ~ 230V			0.5	mA
Load				40		MΩ
Potentiometer Adjustment			10k potentiometer			
Output Modulation Linearity				<0.1		%
Load Regulation Rate		I <sub>OUT</sub> = 0 ~ 0.5mA		≤0.05		%
Instantaneous Short Circuit Current	I <sub>SC</sub>			<0.1		mA
Full Load Efficiency	η			≥70		%
Temperature Coefficient	TCV <sub>O</sub>	-20 ~ 50°C		<0.01		%/°C
Time Drift	Short Time Drift			<0.05		%/ min
	Long Time Drift			<0.05		%/h
Output Voltage Temperature Stability		-20 ~ 50°C		<±0.05		%
Operating Temperature Range	T <sub>opr</sub>		-20		55	°C
Storage Temperature Range	T <sub>stg</sub>		-20		80	°C
External Dimensions			210×120×50			mm
Weight				1192		g
				2.63		lbs
				42.05		Oz



PANEL INSTRUCTIONS

Left Panel

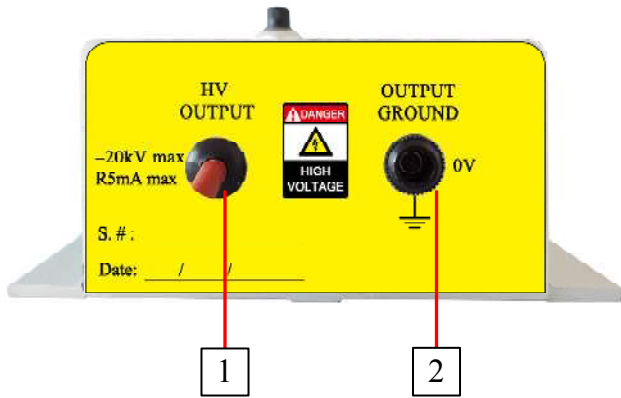


Figure 2. Left Panel

- 1. HV output: 1m long connection wire outputs -20kV 0.5MA.
- 2. Output ground: high voltage power supply output ground terminal.

Front Panel

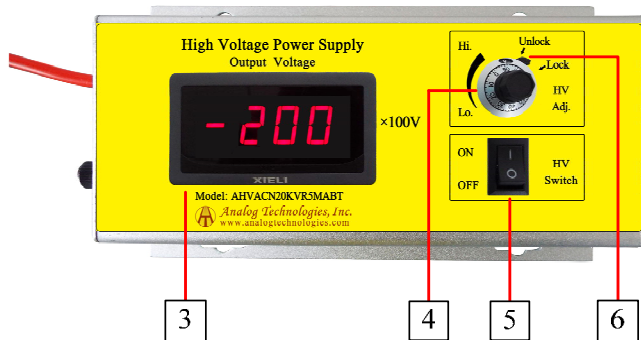


Figure 3. Front Panel

- 3. Output display: Digital display for output voltage. The actual output voltage = display reading × 100V.
- 4. HV adjustment: 10-turn potentiometer for adjusting output voltage. Rotate it clockwise to increase the output voltage, and the potentiometer resistance = the corresponding scale × 10Ω. For example, as Figure 4 shows, when the scale is 10,

and the frame above the scale shows 1 (1kΩ), then the resistance = 10 × 10Ω + 1kΩ = 1.1kΩ, and the like.



Figure 4. Scale and Resistance Calculation

- 5. High voltage ON/OFF switch
- 6. Potentiometer lock: when turn the lock clockwise, then the potentiometer is locked, so that the POT will not be rotated for any voltage change.

Right Panel

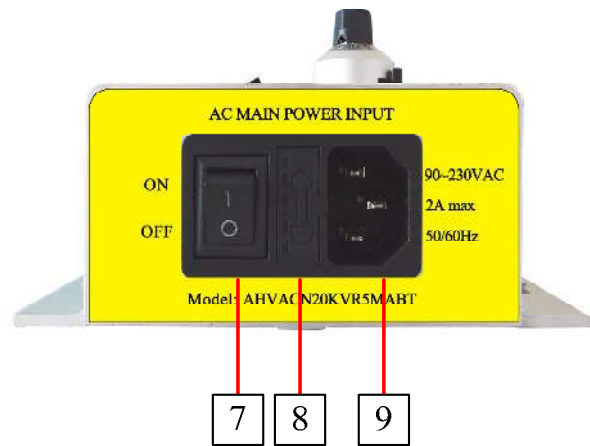


Figure 5. Right Panel

- 7. Main power ON/OFF switch
- 8. Fuse: 250V/2A
- 9. Input connector: AC input 90 ~ 230V 50/60Hz connector.



**TESTING DATA**

High voltage power supply testing data (Test condition: the load is 40MΩ)

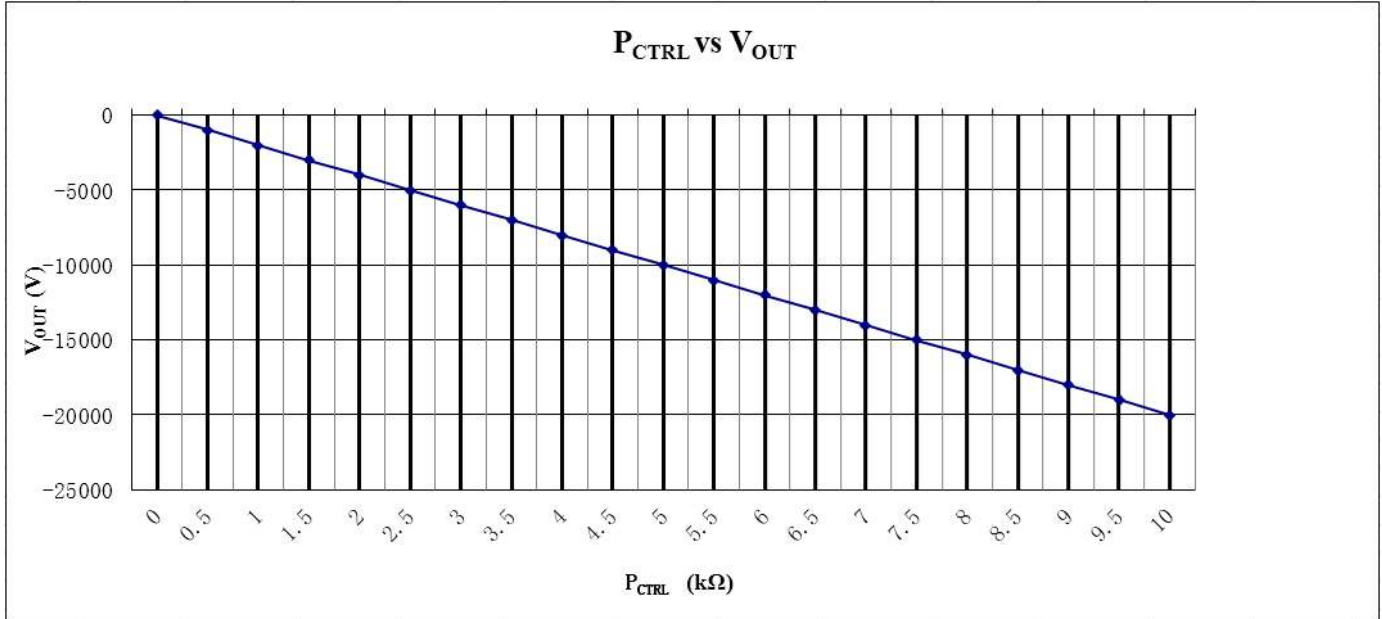


Figure 6. P\_CTRL vs. V\_OUT

**NAMING INSTRUCTIONS**

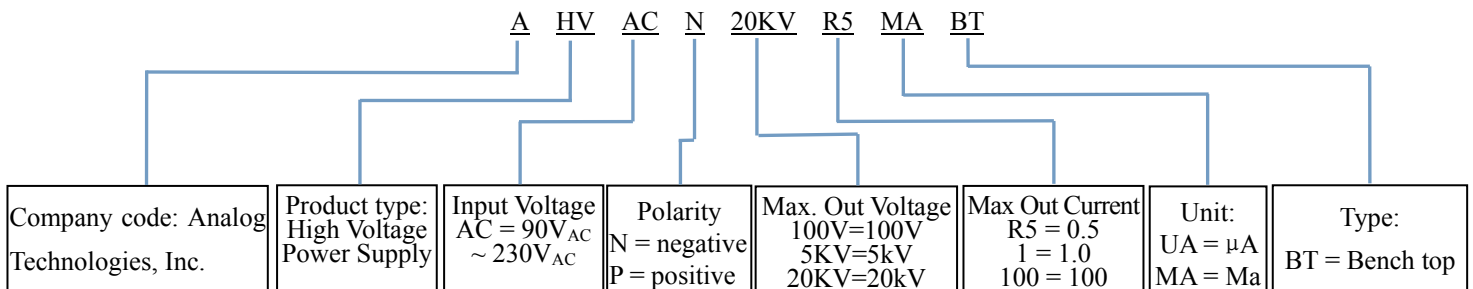


Figure 7. Naming Rules of AHVACN20KVR5MABT



**DIMENSIONS**

I. Dimension of the leads.



Figure 8. Leads of AHVACN20KVR5MABT

Leads	Diameter (mm)	Length (m)
Thick brown lead	4.5	1.0
Power cord	6.5	1.8

II. Dimension of AHVACN20KVR5MABT.

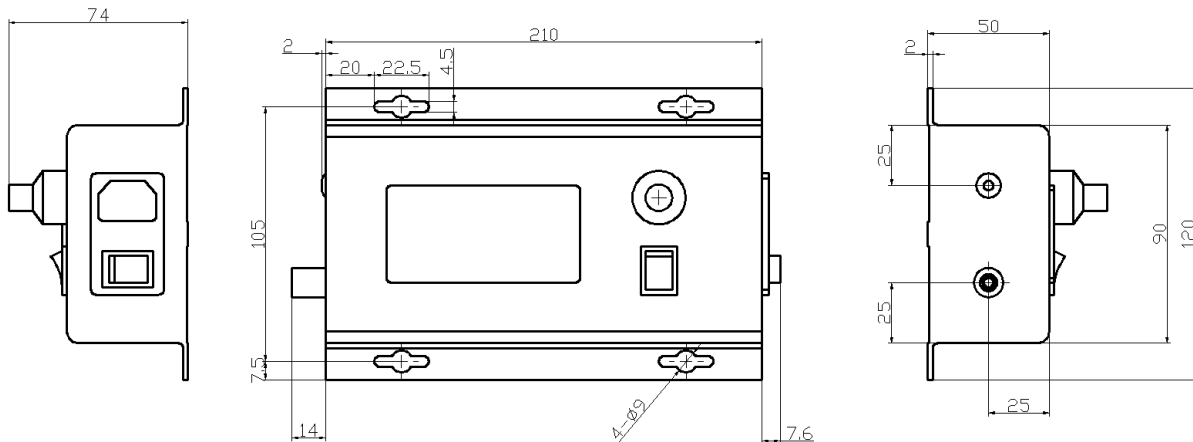


Figure 9. Dimensions for AHVACN20KVR5MABT



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