Figure 1. Physical Photo of AHVACN20KV5MABT

FEATURES

High precision

High efficiency

High output voltage stability

Linear modulation of output voltage

Overcurrent protection

Short circuit protection

Digital display for output voltage

APPLICATIONS

AHVACN20KV5MABT, 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_A = 25°C, unless otherwise noted

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit/Note
AC Input Voltage		V_{VPS}		110		220	V_{AC}
Quiescent Input Current		I_{INQQ}	I_{OUT} = 0mA	260	270	280	mA
Full Load Input Current		I_{INFLD}	I_{OUT} = 5mA	800	1000	1200	mA
Input Voltage Regulation Ratio		$\Delta V_{OUT}/\Delta V_{VPS}$	V_{VPS} = 90V ~ 230V		0.05		%
Output Voltage		V_{OUT}	I_{OUT} = 0 ~ 5mA	0		–20000	V
Maximum Output Current		I_{OUTMAX}	V_{VPS} = 90V ~ 230V			5	mA
Ripple					<0.1		$\%V_{P-P}$
Load					4		MΩ
Potentiometer Adjustment				10k potentiometer			
Output Modulation Linearity					<0.1		%
Load Regulation Rate			I_{OUT} = 0 ~ 5mA		≤0.05		%
Instantaneous Short Circuit Current		I_{SC}			<20		mA
Full Load Efficiency		η			≥70		%
Temperature Coefficient		TCV_O	−20 ~ 55°C		<0.01		%/°C
Time Drift	Short Time Drift		After 30 minute's warming up		<0.05		%/ min
	Long Time Drift				<0.05		%/h
Output Voltage Temperature Stability			−20 ~ 55°C		<±0.01		%
Operating Temperature Range		T_{opr}		−20		55	°C
Storage Temperature Range		T_{stg}		−20		80	°C
External Dimensions				350×300×125			mm
Weight					6000		g
					13.23		lbs
					211.64		Oz

PANEL INSTRUCTIONS

Front Panel

Figure 2. Front Panel

1. Display the output voltage: Digital display for the output voltage. The actual output voltage = the reading × 100V.
2. Display the output current: Digital display for the output current. Actual output current = the reading × mA.
3. Shout circuit reset: When there is high voltage output short circuit, press the reset button to restart the unit.
4. High voltage ON/OFF switch
5. 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.

   HV output: 1m long connection wire outputs –20kV 5mA.

Back Panel

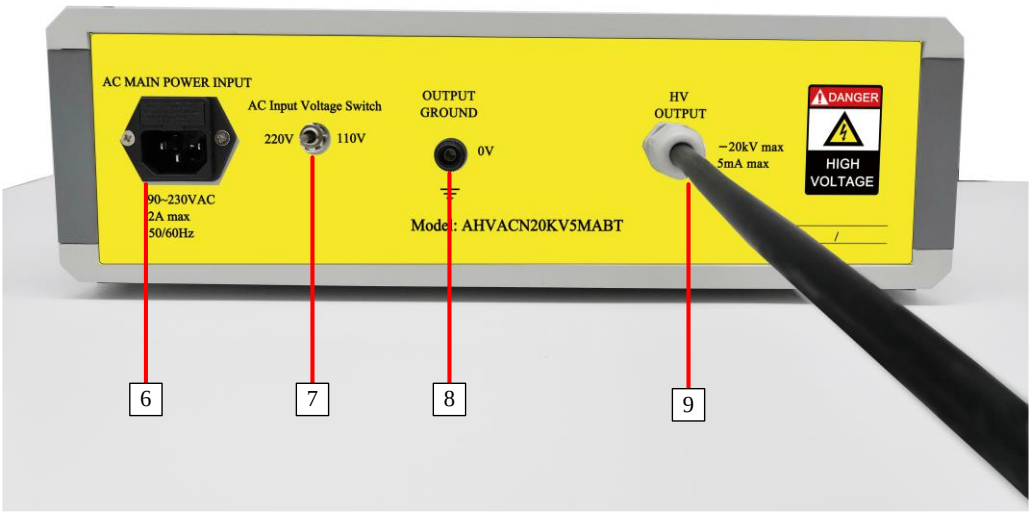

Figure 3. Front Panel

6. Input connector: AC input 90 ~ 230V 50/60Hz connector.
7. AC input voltage switch: check the input AC voltage is 110V or 220V before connecting the AC power supply
8. Output ground: high voltage power supply output ground terminal.
9. HV output: 1m long connection wire outputs –20kV and 5mA

TESTING DATA

High voltage power supply testing data (Test condition: the load is 4MΩ)

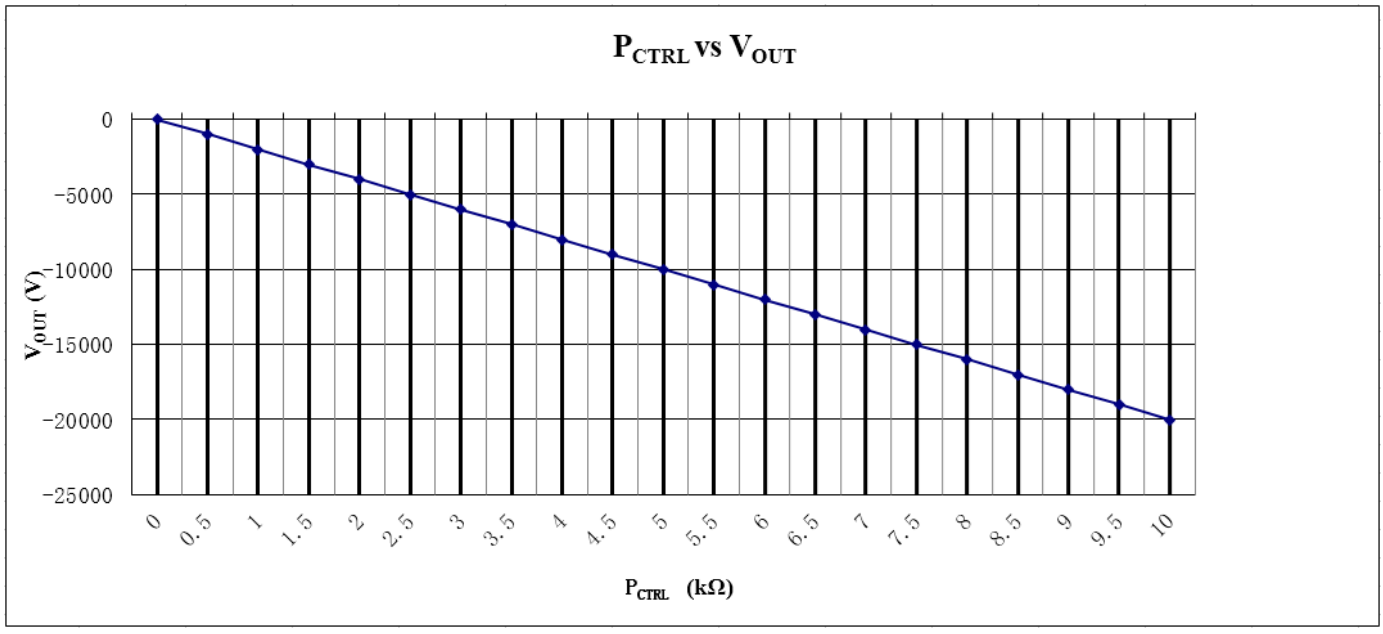

Figure 4. P_{CTRL} vs. V_{OUT}

NAMING INSTRUCTIONS

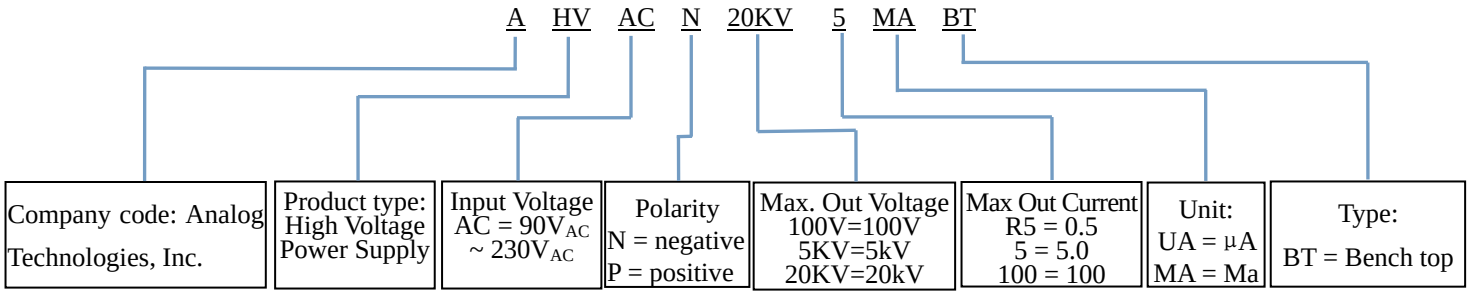

Figure 5. Naming Rules of AHVACN20KV5MABT

DIMENSIONS

I. Dimension of the leads.

Figure 6. Leads of AHVACN20KV5MABT

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

II. Dimension of AHVACN20KV5MABT.

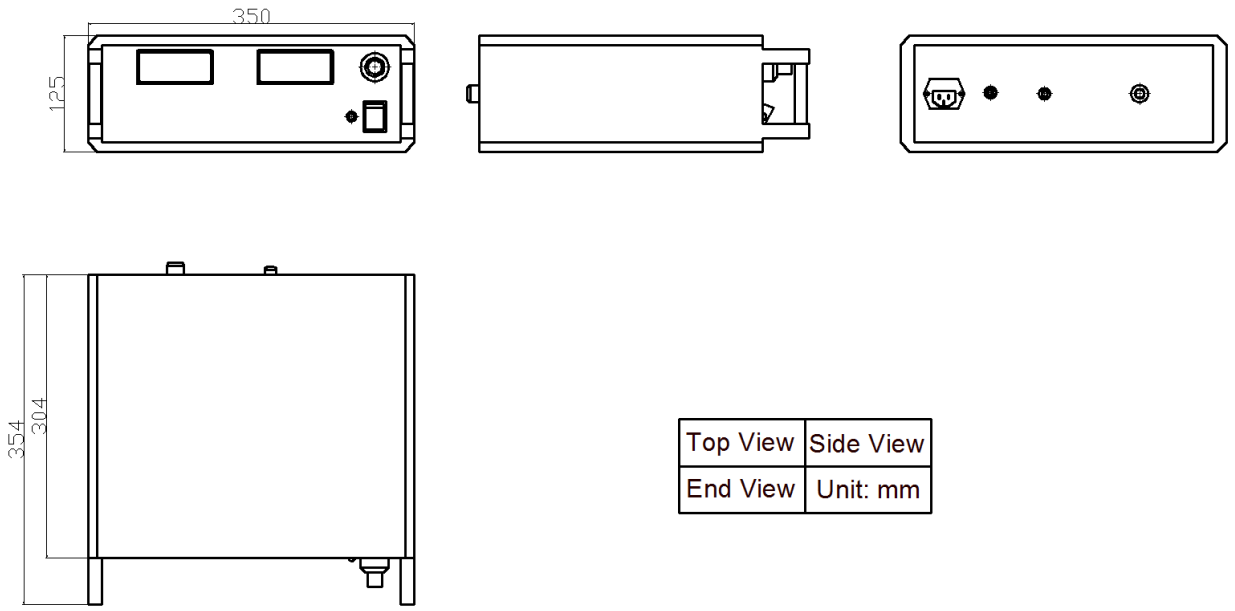

Figure 7. Dimensions for AHVACN20KV5MABT

PRICES

Quantity (pcs)	1~9	10~49	50~99	≥100
AHVACN20KV5MABT	$1399	$1299	$1199	$1099

NOTICE

1. ATI warrants performance of its products for one year to the specifications applicable at the time of sale, except for those being damaged by excessive abuse. Products found not meeting the specifications within one year from the date of sale can be exchanged free of charge.
2. ATI reserves the right to make changes to its products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.
3. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgment, including those pertaining to warranty, patent infringement, and limitation of liability. Testing and other quality control techniques are utilized to the extent ATI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.
4. Customers are responsible for their applications using ATI components. In order to minimize risks associated with the customers' applications, adequate design and operating safeguards must be provided by the customers to minimize inherent or procedural hazards. ATI assumes no liability for applications assistance or customer product design.

5. ATI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of ATI covering or relating to any combination, machine, or process in which such products or services might be or are used. ATI's publication of information regarding any third party's products or services does not constitute ATI's approval, warranty or endorsement thereof.
6. IP (Intellectual Property) Ownership: ATI retains the ownership of full rights for special technologies and/or techniques embedded in its products, the designs for mechanics, optics, plus all modifications, improvements, and inventions made by ATI for its products and/or projects.

