

30X15X12

- HIGH STABILITY: 10PPM/HR
- ULTRA LOW NOISE 10PPM
- ULTRA LOW TEMPERATURE COEFFICIENT 10PPM/°C
- COMPACT SIZE
- EXTERNAL VOLTAGE REFERENCE
- OEM CUSTOMIZATION AVAILABLE

## INTRODUCTION

Wisman's MMA series of high voltage 0.5~2W micro-modules that provide output voltages ranging from 100V to 2kV. MMA modules are compact six-sided shielded modules with ultra-low noise, high stability and ultra-low temperature coefficient. All models are provided with external potentiometer or an external voltage monitoring panel. This series modules have protection functions including over current protection, arc fault protection and short circuit protection.

## TYPICAL APPLICATIONS

Mass spectrometry photomultiplier tubes (PMT), solid state detectors, Piezo crystal devices, ultrasonic transducers, microchannel plates (MCP), spectroscopy, scintillation counters, electron multiplier detectors, nuclear Instruments, electrophoresis, semiconductor testing, DNA sequencing, radiation counter, electron and ion beams, electrostatic chuck, high voltage, bias hipot testing, precision lenses, image intensifiers, semiconductor testing, chemical applications, laboratory applications, industrial application supplies.

## MMA SELECTION TABLE

kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL
0.1	5.00	0.5	MMA0.1*0.5	0.3	1.67	0.5	MMA0.3*0.5	1	0.50	0.5	MMA1*0.5	1.5	0.33	0.5	MMA1.5*0.5
	10.00	1	MMA0.1*1		3.33	1	MMA0.3*1		1.00	1	MMA1*1		0.67	1	MMA1.5*1
	20.00	2	MMA0.1*2		6.67	2	MMA0.3*2		2.00	2	MMA1*2		1.33	2	MMA1.5*2
0.2	2.50	0.5	MMA0.2*0.5	0.5	1.00	0.5	MMA0.5*0.5	1.25	0.40	0.5	MMA1.25*0.5	2	0.25	0.5	MMA2*0.5
	5.00	1	MMA0.2*1		2.00	1	MMA0.5*1		0.80	1	MMA1.25*1		0.50	1	MMA2*1
	10.00	2	MMA0.2*2		4.00	2	MMA0.5*2		1.60	2	MMA1.25*2		1.00	2	MMA2*2

## MMA SELECTION EXAMPLE

MMA	2	*	2	VP	5	VM	5	LS	12
Series Number	Maximum Output Voltage (kV)	Output Polarity P:positive N:negative	Maximum Output Power (W)	Option Programming VP: Voltage programming	Option Programming Proportion 10:0~+10Vdc=0 to max. output 5:0~+5Vdc=0 to max. Output 2.5:0~+2.5Vdc=0 to max. output(only for +5Vdc input)	Option Monitor VM: Voltage Monitor	Option Monitor Proportion 10:0~+10Vdc=0 to max. output 5:0~+5Vdc=0 to max. Output 2.5:0~+2.5Vdc= max. output (only for +5Vdc input)	Option Start Way Low level start	Option Input Voltage 24:+24Vdc input 15:+15Vdc input 12:+12Vdc input 5:+5Vdc input



**MMA SPECIFICATIONS**

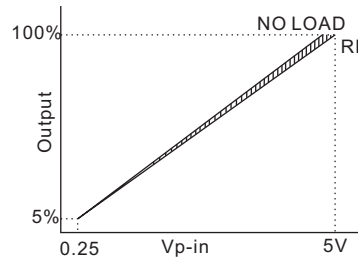
PARAMETER	DESCRIBE
Input Voltage	+12Vdc±2%, input current ≤350mA. +24Vdc±2%, +15Vdc±2%, +5Vdc±2% input available
Output	0.1kV, 0.2kV, 0.3kV, 0.5kV, 1kV, 1.25kV, 1.5kV, 2kV available.
Stability	0.001%/hr after a 30 minute warm-up period.
Temperature Coefficient	<10ppm/°C.
Ripple	5mV, under 1kV; 1kV~2kV, 0.01% maximum output voltage.
Voltage Programming	By external voltage control(Vp-in) 0~+5Vdc. Zin=100kΩ .
Voltage Monitor	0~+5Vdc=0 to 100% output, Zout=20kΩ. Accuracy=±1%.
Voltage Line Regulation	±0.001% (input voltage change ±2%).
Voltage Load Regulation	±0.01% (no load to full load change).
Operating Temperature	0°C~+50°C.
Storage Temperature	-40°C~+85°C.
Humidity	0%~90%RH, non-condensing
Cooling	Convection cooled.
Dimensions	0.47" H x 0.59" W x 1.18" D (12.00mm x 15.00mm x 30.00mm).
Weight	15g.

**A**  
**MICRO-MODULES**

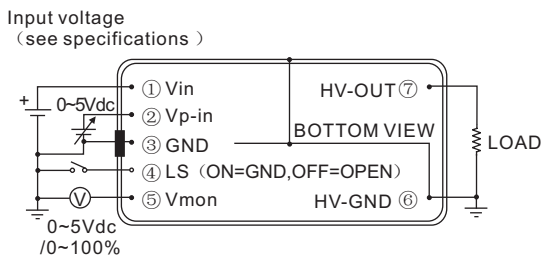
**MMA PIN INFORMATION**

PIN	DESCRIPTION
1	Input voltage +12Vdc±2%, Option +24Vdc±2%, +15Vdc±2%, +5Vdc±2%
2	Voltage Programming, 0~+5Vdc=0~100% rated output, Zin=100kΩ
3	Power Ground
4	LS: GND=ON, OPEN=OFF (OPTION)
5	Voltage monitor, 0~+5Vdc=0~100% rated output, Zout=20kΩ
6	HV Ground
7	HV Output

**OUTPUT VOLTAGE CONTROLLING CHARACTERISTIC**



**MMA CONNECTION DIAGRAM**



④LS (LS OPTION)

Note: Case must be connected to ground

**MMA DIMENSIONS**

