



- RS-232,RS-485,USB2.0 CONTROL OPTIONAL
- 100kV,2mA,200W MAXIMUM
- OVERVOLTAGE, ARC AND SHORT-CIRCUIT PROTECTION
- VOLTAGE PROGRAMMING, CURRENT PROGRAMMING AVAILABLE
- LOCAL AND REMOTE CONTROL
- SAFETY INTERLOCK FUNCTION
- OEM CUSTOMIZATION AVAILABLE



## INTRODUCTION

Wisman' s MRL series is compact high voltage power supply with features of high stability and accuracy and perfect adjustment performance, providing both positive and negative high voltage output. MRL can be test and control via internal, external and computer. RS-232 and RS-485 optional. It provides overvoltage, overcurrent, arcing, short-circuit and safety interlock protection.

## APPLICATION

ESD, Electrophoresis, DNA squencing,IBM,EBM, eletrostatic chuck,High voltage bias, Withstand voltage testing,Pulsed power supply Electrostatic spinning, Capacitor charging, Semiconductor testing, Electronic component aging, Power cable testing, Gas chromatography,Blood analysis, Cathode X-ray tube, SPECT scanner, PET scanner, Life science, Medical industrial, Science experiment and Industrial applications.

## SELECTION TABLE

kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL	kV	mA	P(W)	MODEL
1	75	75	MRL 1*75	10	7.5	75	MRL10*75	30	2.5	75	MRL 30*75	60	1.25	75	MRL60*75	90	0.83	75	MRL90*75
	90	90	MRL 1*90		9	90	MRL10*90		3	90	MRL 30*90		1.5	90	MRL60*90		1	90	MRL90*90
	100	100	MRL 1*100		10	100	MRL10*100		3.33	100	MRL 30*100		1.67	100	MRL60*100		1.11	100	MRL90*100
	120	120	MRL 1*120		12	120	MRL10*120		4	120	MRL 30*120		2	120	MRL60*120		1.33	120	MRL90*120
	150	150	MRL 1*150		15	150	MRL10*150		5	150	MRL 30*150		2.5	150	MRL60*150		1.67	150	MRL90*150
	200	200	MRL 1*200		20	200	MRL10*200		6.67	200	MRL 30*200		3.33	200	MRL60*200		2.22	200	MRL90*200
3	25	75	MRL 3*75	15	5	75	MRL 15*75	40	1.88	75	MRL 40*75	70	1.07	75	MRL70*75	100	0.75	75	MRL100*75
	30	90	MRL 3*90		6	90	MRL 15*90		2.25	90	MRL 40*90		1.29	90	MRL70*90		0.9	90	MRL100*90
	33.3	100	MRL 3*100		6.67	100	MRL 15*100		2.5	100	MRL 40*100		1.42	100	MRL70*100		1	100	MRL100*100
	40	120	MRL 3*120		8	120	MRL 15*120		3	120	MRL 40*120		1.71	120	MRL70*120		1.2	120	MRL100*120
	50	150	MRL 3*150		10	150	MRL 15*150		3.76	150	MRL 40*150		2.14	150	MRL70*150		1.5	150	MRL100*150
	66.7	200	MRL 3*200		1.33	200	MRL 15*200		5	200	MRL 40*200		2.86	200	MRL70*200		2	200	MRL100*200
5	15	75	MRL 5*75	20	3.75	75	MRL 20*75	50	1.5	75	MRL 50*75	80	0.94	75	MRL80*75				
	18	90	MRL 5*90		4.5	90	MRL 20*90		1.8	90	MRL 50*90		1.13	90	MRL80*90				
	20	100	MRL 5*100		5	100	MRL 20*100		2	100	MRL 50*100		1.25	100	MRL80*100				
	24	120	MRL 5*120		6	120	MRL 20*120		2.4	120	MRL 50*120		1.5	120	MRL80*120				
	30	150	MRL 5*150		7.5	150	MRL 20*150		3	150	MRL 50*150		1.88	150	MRL80*150				
	40	200	MRL 5*200		10	200	MRL 20*200		4	200	MRL 50*200		2.5	200	MRL80*200				

## MRL SELECTION EXAMPLE

MRL	100	*	200	VIP	10	VIM	10	TR	AX
Series Number	MAX. Output Voltage (kV)	Output Polarity P:Positive N:Negative	MAX. Output Power (W)	Option	Option	Option	Option	Option	Option
				VP: Voltage Program IP: Current Program VIP:Voltage and Current Program	10:0 ~+10Vdc Programming =0 to Max. Output 5:0~+5Vdc Programming =0 to Max. Output	VM: Voltage Monitor IM: Current Monitor VIM:Voltage and Current Monitor	10:0 ~+10Vdc Programming =0 to Max. Output 5:0~+5Vdc Programming =0 to Max. Output	TR:RS-232 AB:RS-485 USB:USB2.0	X=0,1,2,3, 5,8,N 0 with no arc N arc no shut down



## FEATURES

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PARAMETERS		DESCRIBE		
Input		+48Vdc± 2%,6.25A at maximum		
Output		1kV,3kV,5kV,10kV,15kV,20kV,30kV,40kV,50kV,60kV,70kV,80kV,90kV,100kV optional		
Stability		< 0.01% per 1 hour after half an hour' s warm up. < 0.02% per 8 hours.		
Temperature coefficient		≤25ppm/°C。		
Ripple		≤0.1%Vp-p。		
Voltage current monitor		0~+10Vdc=0~100% rated output,Zout=10kΩ, accuracy:±1%		
Voltage local control		Internal potentiometer set output voltage from 0~100% rated output.		
Voltage remote control		External 0~+10Vdc control signal set output voltage from 0~100% rated output,Zin=10MΩ.		
Voltage load regulation		0.01%(no load to full load)		
Voltage line regulation		±0.01%(Input Voltage line changes ±10%)		
Current load regulation		0.01%(no load to full load)		
Current line regulation		±0.01%(Input Voltage line changes ±10%)		
Operation temperature		0°C~ +50°C		
Storage temperature		-40°C ~ +85°C。		
Cooling		< 100W:convection cooling;40kV, > 100W:Fan assisted;Other > 120W:Fan(30CFM) assisted.		
Humidity		20%~85%RH,no condensing		
DIMENSIONS	1kV~40kV	4.72''H x4.72''W'x6.54''D(120mmx120mmx166mm)	Weight	3.9kg
	40kV~70kV	5.51''H x3.94''W'x9.06''D(140mmx100mmx230mm)		4.8kg
	70kV~100kV	6.10''H x7.48''W'x15.94''D(155mmx190mmx405mm)		15kg

## MRL POWER INPUT INTERFACE

PIN	SIGNAL	
1	GND	GND
2	+48Vdc	+48Vdc,maximum

## MRL ANALOG INTERFACE CONNECTOR

I/O	SIGNAL	
1	Gnd	Gnd
2	Voltage Monitor	0~+10Vdc=0 to full scale,Zout=10kΩ
3	Current Monitor	0~+10Vdc=0 to full scale,Zout=10kΩ
4	External Interlock	Connect to pin 1 to HV enable supply
5	+10Vdc reference	1mA, +10Vdc at maximum
6	N/C	N/C
7	Voltage remote control input	0~+10Vdc=0 to full scale,Zout=10MΩ
8	Voltage local control output	0~+10Vdc, potentiometer adjustment
9	N/C	N/C
10	Reset signal	Connect to GND,protection circuit reset.
11	Interlock output	Interlock output+12Vdc
12	Interlock coil	Connect to pin 11 to HV enable supply
13	Current local control output	0~+10Vdc, potentiometer adjustment
14	Current remote control input	0~+10Vdc=0 to full scale,Zout=10MΩ
15	Internal connection	Gnd

## RS-232/RS-485 DIGITAL INTERFACE<sup>D</sup>

PIN	SIGNAL	PIN	SIGNAL
1	N/C	6	N/C
2	TXD/Transmit data	7	RS-485B optional
3	RXD/ Receive data	8	N/C
4	N/C	9	RS-485A optional
5	Gnd		

## MRLLED INDICATORS<sup>D</sup>

PIN	SIGNAL	PIN	SIGNAL
1	ARC	5	OV
2	OT	6	UV
3	OC	7	HV
4	INTLK		

## USB DIGITAL INTERFACE<sup>D</sup>

J2	SIGNAL	
1	VBUS	+5Vdc
2	D-	Data-
3	D+	Data+
4	GND	USB GND

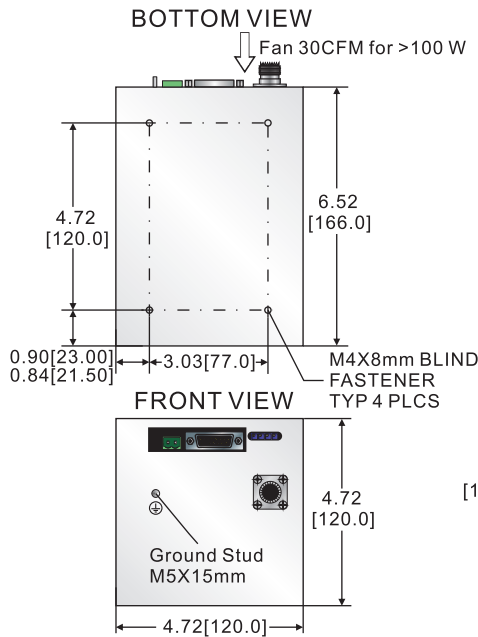


**DIMENSIONS**

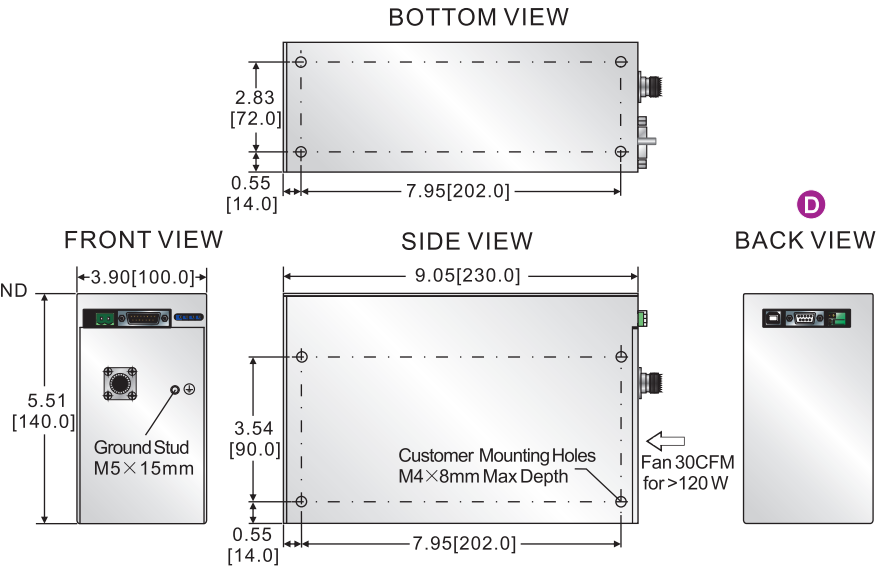
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DIMENSIONS:in.[mm]

**1kV~40kV:**



**40kV~70kV(USB2.0/RS-232/RS-485):**



**70kV~100kV(USB2.0/RS-232/RS-485):**

