0.125~60kV
60W/125W/250W
High Power Module

SCHMID-M

A MICRO-MODULES

- *60W, 125W, or 250W OUTPUT POWER*
- *LOW STORAGE,FAST RISING, LOW OVERSHOOT*
- *OUTPUT CURRENT 0~100% PROGRAMMABLE*
- *OUTPUT SHORT CIRCUIT PROTECTION*
- *HIGH POWER/VOLTAGE DENSITY*
- *HIGH EFFICIENCY*
- *ULTRA-THIN,DIGITAL CONTROL*
- *PROGRMMABLE*
- *MONITORING PANEL*
- *OEM CUSOMIZATION AVAILABLE*

INTRODUCTION

SMUC series high-voltage module is an extension of the SMU series, which can be directly installed on devices with power requirements greater than 30W. The SMUC series provides output power up 250W. SMUC series modules are especially suitable for systems with high energy, large capacity, high response rate or continuous high power demand.

TYPICAL APPLICATIONS

Laser pulse, capacitor charging, pulse power supply, pulse generator, test equipment, ion pump, plasma generator, electrostatic precipitation, high voltage amplification bias, industrial testing, wire testing, cable testing.

SMUC SELECTION TABLE

kV	mA	P(W)	MODEL	INTER CAP(nF)	kV	mA	P(W)	MODEL	INTER CAP(nF)	kV	mA	P(W)	MODEL	INTER CAP(nF)	kV	mA	P(W)	MODEL	INTER CAP(nF)
0.125	480	60	SMUC0.125*60	900	4	15	60	SMUC4*60	13	15	4.00	60	SMUC15*60	2.2	40	1.5	60	SMUC40*60	0.75
	1000	125	SMUC0.125*125	900		31.25	125	SMUC4*125	13		8.33	125	SMUC15*125	1.1		3.125	125	SMUC40*125	0.75
	2000	250	SMUC0.125*250	1800		62.5	250	SMUC4*250	26		16.67	250	SMUC15*250	0.75		6.25	250	SMUC40*250	0.375
0.25	240	60	SMUC0.25*60	900	6	10	60	SMUC6*60	13	20	3.00	60	SMUC20*60	1.32	45	1.33	60	SMUC45*60	0.6
	500	125	SMUC0.25*125	900		20.83	125	SMUC6*125	13		6.25	125	SMUC20*125	0.88		2.78	125	SMUC45*125	0.6
	1000	250	SMUC0.25*250	1800		41.67	250	SMUC6*250	26		12.5	250	SMUC20*250	0.75		5.56	250	SMUC45*250	0.3
0.5	120	60	SMUC0.5*60	430	8	7.5	60	SMUC8*60	4.4	25	2.4	60	SMUC25*60	1.1	50	1.2	60	SMUC50*60	0.6
	250	125	SMUC0.5*125	430		15.63	125	SMUC8*125	2.2		5.00	125	SMUC25*125	0.733		2.5	125	SMUC50*125	0.6
	500	250	SMUC0.5*250	850		31.25	250	SMUC8*250	1.5		10.0	250	SMUC25*250	0.5		5.00	250	SMUC50*250	0.3
1	60	60	SMUC1*60	19	10	6	60	SMUC10*60	2.933	30	2	60	SMUC30*60	0.825	55	1.09	60	SMUC55*60	0.5
	125	125	SMUC1*125	19		12.5	125	SMUC10*125	1.467		4.17	125	SMUC30*125	0.55		2.27	125	SMUC55*125	0.5
	250	250	SMUC1*250	38		25	250	SMUC10*250	1.5		8.33	250	SMUC30*250	0.5		4.55	250	SMUC55*250	0.25
2	30	60	SMUC2*60	19	12	5	60	SMUC12*60	2.933	35	1.72	60	SMUC35*60	0.75	60	1.00	60	SMUC60*60	0.5
	62.5	125	SMUC2*125	19		10.42	125	SMUC12*125	1.467		3.57	125	SMUC35*125	0.75		2.083	125	SMUC60*125	0.5
	125	250	SMUC2*250	38		20.83	250	SMUC12*250	0.75		7.14	250	SMUC35*250	0.375		4.167	250	SMUC60*250	0.5

SMUC SELECTION EXAMPLE

SMUC	6	*	250	VIP	5	VIM	5	TR	M1
Series Number	Maximum Output Voltage (kV)	Power Polarity P:Positive Polarity N:Negative Polarity	Maximum Output Power(W)	OPTION VP: Voltage Programming IP: current Programming VPM: Voltage and current Programming	OPTION 10:0 to10Vdc= 0 to maximum output 5:0 to5Vdc= 0 to maximum output	OPTION VM: Voltage Monitor IM: Voltage Monitor IPM: Voltage current Monitor	OPTION 10:0 to10Vdc= 0 to maximum output 5:0 to5Vdc= 0 to maximum output	OPTION TR: RS-232 AB: RS-485	OPTION M1:≤6kV(60W/125W) M2:≤6kV(250W) M3:>6kV,≤30kV(60W/125W) M4:>6kV,≤15kV250W) M5:>15kV,≤30kV(250W) M6:>30kV,≤50kV M7:>30kV,≤60kV

SMUC SPECIFICATIONS

PARAMETER	DESCRIBE
Input Voltage Range	+23Vdc~30Vdc, Power derating voltage input : 60W/125W=11Vdc~30Vdc, 250W=15Vdc~30Vdc
Input Current	Disable current:<40mA; No load current:<1250mA; Full load current:<13A
Input AC Ripple Current	< 50mA
Output Voltage Range	0.125kV,0.25kV,0.5kV,1kV,2kV,4kV,6kV,8kV,10kV,12kV,15kV,20kV,25kV,30kV,35kV, 40kV,45kV,50kV,55kV,60kV.
Ripple	<1%,At Full Load, Max output
Stability	<0.01%/8hr. <0.02%/day
VoltageLine Regulation	<0.01%,Nom. Input, Max output, Full Power
VoltageLoad Regulation	<0.01%.No Load to Full Load, Max output
Current Load Regulation	<0.01% (no load to full load change).
Current lineRegulation	<0.01% (Nom. Input, Max output, Full Power)
Voltage programming	By externa20kΩpotentiometer control, positive: 0~5Vdc negative:5Vdc~0,Zin=10M Ω
Current programming	By external 20kΩ potentiometer control, 0~5Vdc Zin = 10MΩ
Voltage monitor	0~5Vdc, 0~100% output, Zout = 464Ω ±1%.
Current monitor	0~5Vdc, 0~100% output, Zout = 464Ω ±1%
Over-shoot	C Load, 0 output to Full output < 1% V pk
Rise time	In sync with output voltage.
Temperature	Operating:-40~+65℃,Storage :-55~+105℃
Temperature Coeicient	50PPm(25PPm option)
Thermal Shock	-55~+105℃
Humidity	0 to 95% non-condensing Humidity
Altitude	Sea level through 70,000

SMUC RISE TIME

C = uF ,V=Volts,I=mA ,T=ms	C = uF, V=kV,I=mA ,F=Hz	C = uF, V=kV ,I=mA , F=Hz	C = uF, E^2=kV ,J=Ws
$T=\frac{C\times V}{I}$	$I=C\times V\times F$	$F=\frac{I}{C\times V}$	$J=\frac{C\times E^2}{2}$

NOTES: Capacitance must include HVPS internal Capacitance.

SMUC PIN INFORMATION

M1:≤6kV(60W/125W)

PIN	SINGAL	PARAMETER
1,8	GND	Power Ground
2,9	Vin	Positive power input
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	GND=HV ON,OPEN=HV OFF
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC(option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
15,16	Ground	HV ground
17,18	HV ouput	HV ouput

M2:≤6kV (250W)

PIN	SINGAL	PARAMETER
1,8	NC	NC
2,9	NC	NC
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	GND=HV ON,OPEN=HV OFF
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC (option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
15,16	Ground	HV ground
17,18	HV ouput	HV ouput
19,20	Power input	+24Vdc power input
21,22	Ground	Power ground

M3:＞6kV,≤30kV (60W/125W)

PIN	SINGAL	PARAMETER
1,8	GND	Power Ground
2,9	Vin	Positive power input
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	GND=HV ON,OPEN=HV OFF
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC(option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
15,16	Ground	HV ground
17	HV ouput	HV ouput

M5:＞15kV,≤30kV(250W)

PIN	SINGAL	PARAMETER
1,8	NC	NC
2,9	NC	NC
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	GND=HV ON,OPEN=HV OFF
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC(option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated out ut,Zout=464Ω.
15,16	Ground	HV ground
17,18	Power input	+24Vdc power input
19,20	Ground	Power ground
21	HV output	HV output

RS-232/RS-485 CONNECTOR

2A	TX/A	TXD /RS-485A
9A	RX/B	RXD /RS-485B
10	D	

SMUC WEIGHT AND DIMENSIONS

MODEL	W (kg)	DIMENSIONS
M1	0.4	1.06" Hx4.5" Wx4" D (27mm x 114.3mm x101.6mm)
M2	0.75	1.06" Hx4.5" Wx8" D (27mm x 114.3mm x203.2mm)
M3	0.75	1.06" Hx4.5" Wx8" D (27mm x 114.3mm x203.3mm)
M4	0.75	1.06" Hx4.5" Wx8" D (27mm x 114.3mm x203.2mm)
M5	1.5	2.03" Hx4.5" Wx8" D (51.6mm x 114.3mm x203.2mm)
M6	3.3	2.5" Hx4.5" Wx14" D (63.5mm x 114.3mm x355.6mm)
M7	3.3	2.5" Hx4.5" Wx14" D (63.5mm x 114.3mm x355.6mm)

M4:＞6kV,≤15kV(250W)

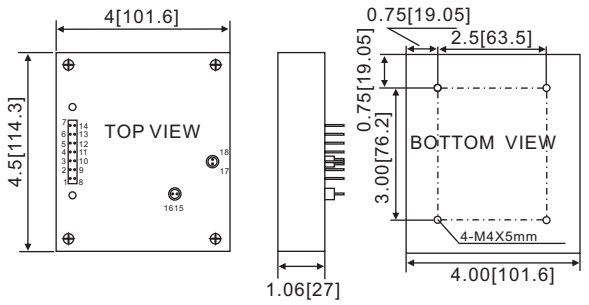
PIN	SINGAL	PARAMETER
1,8	NC	NC
2,9	NC	NC
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	GND=HV ON,OPEN=HV OFF
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC(option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
15,16	Ground	HV ground
17,18	Power input	+24Vdc power input
19,20	Ground	Power ground
21	HV output	HV output

M6,M7:＞30kV,≤60kV (60W/125W/250W)

PIN	SINGAL	PARAMETER
1,8	NC	NC
2,9	NC	NC
3	Imon	0~5Vdc for 0to 100% rated output,Zout=464Ω.
4	Enable/Disable	Disable:0~0.7Vdc, Enable:2.4Vdc~32Vdc
5	Signal GND	Signal GND
6	Vpin	+Output:0to5Vdc=0 toMAX.,-output:5Vdc~0=0toMAX.
7	VREF	+5Vdc reference voltage
10	NC	NC(option DGND)
11	I MODE	I mode
12	V MODE	Vmode
13	Ipin	0~5Vdc for 0to 100% rated output,Zin=10MΩ.
14	Vmon	0~5Vdc for 0to 100% rated out ut,Zout=464Ω.
15,16	Ground	HV ground
17	HV output	HV output
19,20	Power input	+24Vdc power input
21,22	Ground	Power ground

SMUC DIMENSIONS

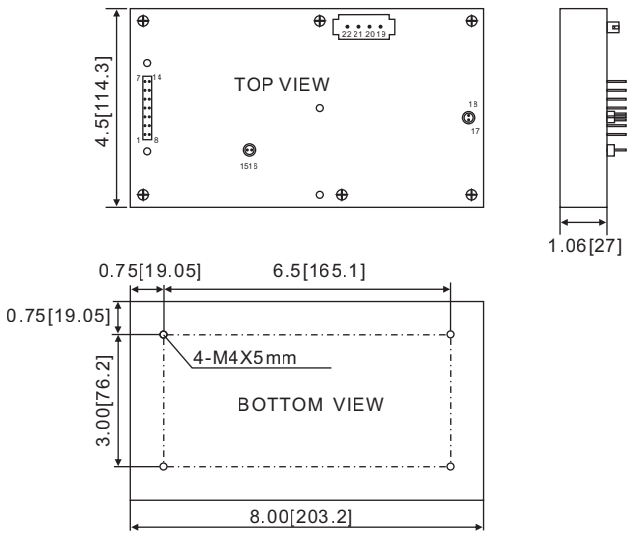
M1:≤6kV(60W/125W)



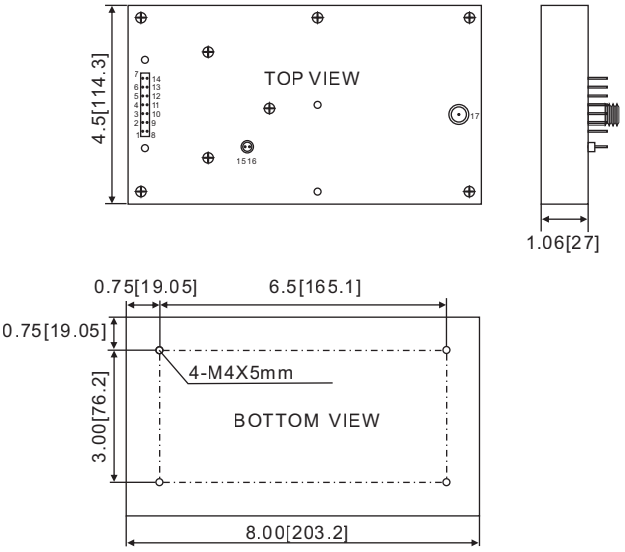
SMUC DIMENSIONS

DIMENSIONS:inch[mm]

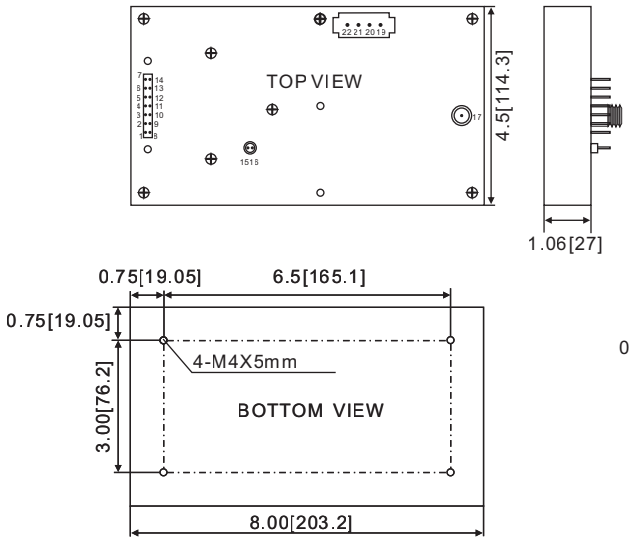
M2:≤6KV (250W)



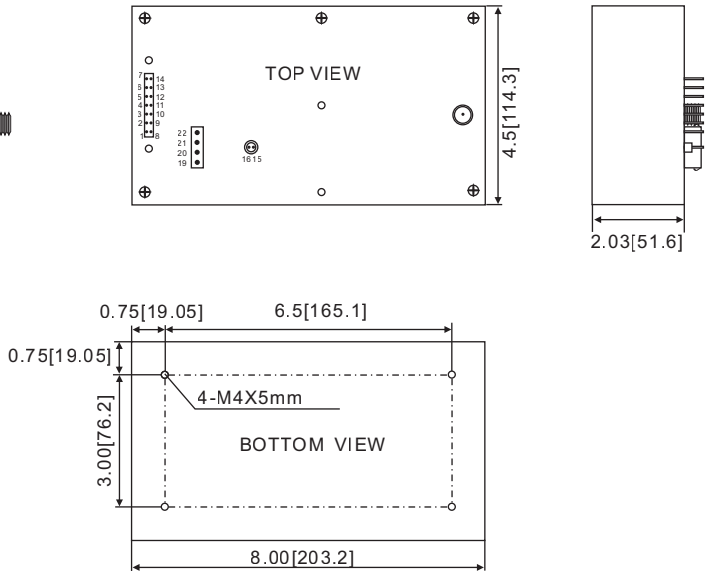
M3:>6kV,≤30kV (60W/125W)



M4:>6kV,≤15kV (250W)

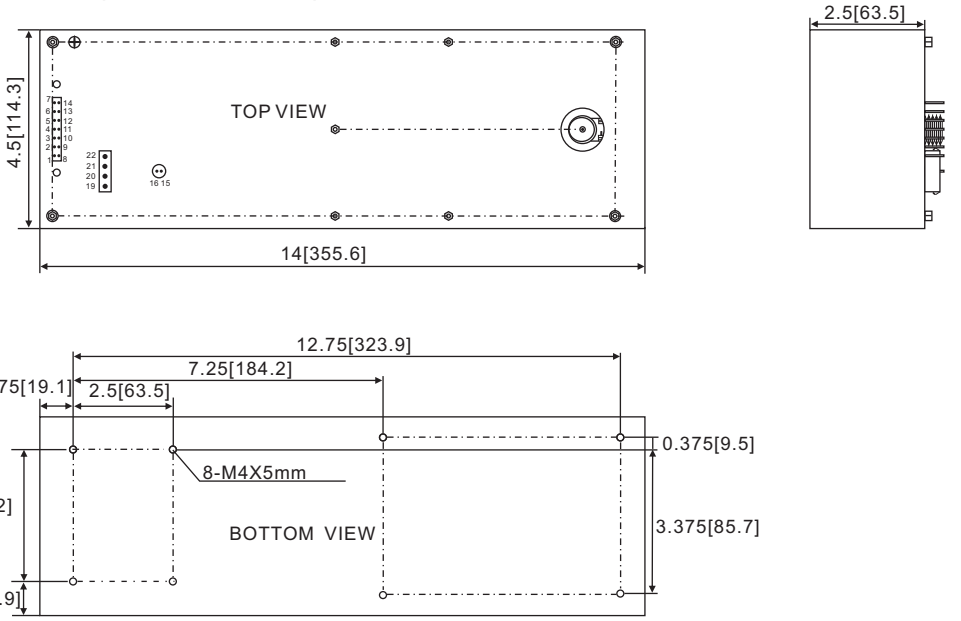


M5:>15kV,≤30kV (250W)



SMUC DIMENSIONS

M6:＞30kV,≤50kV (60W/125W/250W)



M7:＞30kV,≤60kV (250W)