#### SEM OEM MODULE FOR SEM APPLICATION High voltage power supply 威思曼高压电源 Page 1of 3 ISO9001:2015 STANDARD ET INTERFACE, RS-232 CONTROL ELECTRON MICROSCOPY. ELECTRON BEAM. ION **BEAM POWER SYSTEM.** HIGH ACCURACY, HIGH STABILITY, LOW RIPPLE. NE REUT Co Co OVER VOLTAGE, OVER CURRENT, SHORT CIRCUIT Rin AND ARC PROTECTION. CORONA FREE OPERATION OEM CUSTOMIZATION AVAILABLE

#### INTRODUCTION

Wisman's SEM Series is an integrated multiple output high voltage power supply specifically designed to drive Scanning Electron Microscope (SEM) Columns. Wisman's extensive knowledge in this application has enabled us to develop a range of technology platforms that can be customized to meet the demanding requirements of SEM. The main Acceleration Voltage is a high stability 30kV supply, with integrated floating Filament, Extractor and Suppressor outputs required to drive Field Emission, Cold Cathode and Schottky Electron Sources in a compact solution with extenders to mount in a 19" rack. All outputs are offered with ultra-low output ripple, excellent regulation, stability, temperature coefficient, drift and accuracy specifications. Isolation and control of the respective floating sources is provided via Wisman's proprietary high voltage isolation techniques. Customer control of this integrated SEM power supply system is accomplished via a fiber optic interface. All high voltage safety interlocks are of a fail safe hardware based design and the SEM is CE marked and is designed to be compliant with applicable IEC, UL and SEMI standards. Wisman's SEM offers exceptional performance with low ripple, micro-discharge, and ppm level stability for unprecedented image quality and resolution.

### TYPICAL APPLICATION

Scanning electron microscopy, Semiconductor analysisElectron beam; Ion beam, Semiconductor analysis, Ion beam etching, Focused ion-beam lithography, Vacuum gun,

#### SEM SELECTION TABLE

	Accelerator Supply			Grid Supply			Filament Supply			
Voltage(kv)	Current(uA)	Ripple	Stability	Voltage(kv	Current(uA	Stability	Voltage(kv)	Current(A)	Ripple	Stability
-30	400	<100mVp-p	0.3v/15 mins <25ppm/hrs	-3 6	400	<0.4uA/15mins	5	4	<1mA <b>(</b> 50 <b>/</b> 60hz <b>)</b> <30mVp-p	<2mA/hrs

	Extractor Supply			Scintillator power				Photomultiplier Tubes Supply			
Voltage(v	) Output impedance(Ω)	Ripple	Stability	Voltage(kv)	Output impedance(Ω)	Ripple	Stability	Voltage(kv)	Current(mA	Ripple	Stability
±400	100M	<25mVp <b>-</b> p	0.05V/15mins	10	100M	100mVp-p	2V <b>/</b> 15mins	-1.3	1.2	<200mVp-p	$\pm$ 0.02%/hrs

#### SEM SELECTION EXAMPLE





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#### SPECIFICATION

		DESCRIPTION					
	•	86Vac~264Vac,50/60Hz,3A maximum					
A		Output Voltage-100V~-30kv,output Current0~400uA,Referenced to Ground					
;ce	Load Regulation	±0.001%(no load to rated load)					
lera	Line Regulation	$<\pm$ 0.001%(Input Voltage change $\pm$ 10%)					
Accelerator	11.5	Pls turn to SEM selection table					
	-	<5ppm/℃,+20℃~+30℃; <10ppm/℃, +10℃~+45℃					
	-	0.2v/15mins,25ppm/hrs after 1 hr's warm-up					
~	•	Output Voltage-35V~-3500v,output Current 30uA~400uA,Referenced to Accelerator Supply					
Grid	••••••	0.4uA/15mins after 1 hr's warm-up					
<u> </u>		Arc protection					
	Temperature coefficient						
		Output Voltage0~+5Vdc,output Current 0~4A,Referenced to Accelerator Supply					
Fil	Load	At 1.73A, load is the max 2.9 $\Omega$ ; at 0.5A, Load is the minmum 0.4 $\Omega$ . The max power is 12W, Max voltage is 5V					
Filament	Temperature coefficient	25ppm/°C 。					
ent	Load Regulation	$<5$ mA( at 3A, load changes from 0.4 $\Omega$ ~1 $\Omega$ )					
	Ripple	Pls turn to SEM selection table					
	Stability	<2mA/1hrs					
	Output	Output Voltage-400~+400V,Referenced to Ground					
_	Output impedence	100MΩ(94MΩ~104MΩ)。					
Xt	Line regulation	<0.01V (Input voltage change±10%)					
Extractor	Ripple	Pls turn to SEM selection table					
for	Protection	Arcing protection					
	Temperature coefficient <50ppm/°C (at +400V)						
	Stability	<0.05V/15 mins					
		Output Voltage+10KV,Referenced to Ground					
SC	Output impedence	100MΩ(94MΩ~104MΩ)。					
int	Line regulation	$<$ 2V <b>(</b> Input Voltage change $\pm$ 10%)					
Scintillator	Ripple	Pls turn to SEM selection table					
for	Protection	Arcing Protection					
	Temperature coefficien	<b>&lt;25ppm</b> /℃。					
	Stability	<2V <b>/</b> 15mins					
Ph	Output	Output Voltage0~-1300Vdc,Output current 0~1mA,Referenced to Ground					
Photomultiplier Tubes	Load regulation	±0.01%(no Load to rated load)					
nuli	Line regulation	±0.01%。					
tipli	U	Pls turn to SEM selection table					
er T	Temperature coefficient						
ube	Stability	$\pm 0.02$ %/hr after 1 hour's warm-up(at 1mA/-1300v)					
ũ		Arcing Protection					
,	Storage temperature	-30°C~+70°C。					
		Natural convection					
	Humidity	10%~90%RH,no condensing					
	•	4.17" H x 7.87" W x9.84" D (106.00mm x 200.00mm x250.00mm).					
	Dimension						

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#### INTLK

J3	SIGNAL	J3	SIGNAL
1	0∨	6	+24Vdc
2	+24Vdc	7	Accelerator Supply Interlock
3	Extractor Supply Interlock	8	Vacuum Interlock
4	Scintillator power	9	Photomultiplier Tubes Interlock
5	Vacuum Interlock		

# RS-232 DIGITAL INTERFACE

52	JIGNAL	52	SIGNAL
1	N/C	6	N/C
2	TXD/Transmit	7	N/C
3	RXD/Receive	8	N/C
4	N/C	9	N/C
5	GND		

## ETHERNET DIGITAL INTERFACE

J1	SIGNAL	J1	SIGNAL
1	RX+(Receive+)	6	TX-(Transmit-)
2	RX-(Receive-)	7	N/C
3	TX+(Transmit+)	8	N/C
4	N/C	9	N/C
5	GND		

#### SEM DIMENSION

SEM



