SEM

OEM MODULE FOR SEM APPLICATION

wisman®
High voltage power supply
威思曼高压电源

ISO9001:2015

APPLICATION SPECIFIC

- STANDARD ET INTERFACE, RS-232 CONTROL
- ELECTRON MICROSCOPY, ELECTRON BEAM, ION BEAM POWER SYSTEM.
- HIGH ACCURACY, HIGH STABILITY, LOW RIPPLE.
- OVER VOLTAGE, OVER CURRENT, SHORT CIRCUIT 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	-3.5	400	<0.4uA/15mins	5	4	<1mA(50/60hz) <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-p	0.05V/15mins	10	100M	100mVp-p	2V/15mins	-1.3	1.2	<200mVp-p	±0.02%/hrs

SEM SELECTION EXAMPLE

SEM	30	N	10
Series Number	Accelerator Supply Max output Voltage (kv)	Accelerator supply output polarity: Negative	Accelerator Supply Max output power

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SPECIFICATION

	PARAMETER	DESCRIPTION
	Input	86Vac~264Vac,50/60Hz,3A maximum
Accelerator	Output	Output Voltage-100V~-30kv,output Current0~400uA,Referenced to Ground
	Load Regulation	±0.001%(no load to rated load)
	Line Regulation	＜±0.001%(Input Voltage change ±10%)
	Ripple	Pls turn to SEM selection table
	Temperature coefficient	＜5ppm/℃,+20℃~+30℃； ＜10ppm/℃，+10℃~+45℃
	Stability	0.2v/15mins,25ppm/hrs after 1 hr's warm-up
Grid	Output	Output Voltage-35V~-3500v,output Current 30uA~400uA,Referenced to Accelerator Supply
	Stability	0.4uA/15mins after 1 hr's warm-up
	Protection	Arc protection
	Temperature coefficient	25ppm/℃。
Filament	Output	Output Voltage0~+5Vdc,output Current 0~4A,Referenced to Accelerator Supply
	Load	At 1.73A,load is the max 2.9Ω;at 0.5A,Load is the minmum 0.4Ω. The max power is 12W, Max voltage is 5V
	Temperature coefficient	25ppm/℃。
	Load Regulation	＜5mA(at 3A，load changes from 0.4Ω~1Ω)
	Ripple	Pls turn to SEM selection table
	Stability	＜2mA/1hrs
Extractor	Output	Output Voltage-400~+400V,Referenced to Ground
	Output impedence	100MΩ(94MΩ~104MΩ)。
	Line regulation	＜0.01V（Input voltage change±10%)
	Ripple	Pls turn to SEM selection table
	Protection	Arcing protection
	Temperature coefficient	＜50ppm/℃（at +400V）
	Stability	＜0.05V/15 mins
Scintillator	Output	Output Voltage+10KV,Referenced to Ground
	Output impedence	100MΩ(94MΩ~104MΩ)。
	Line regulation	＜2V(Input Voltage change ±10%)
	Ripple	Pls turn to SEM selection table
	Protection	Arcing Protection
	Temperature coefficient	<25ppm/℃。
	Stability	＜2V/15mins
Photomultiplier Tubes	Output	Output Voltage0~-1300Vdc,Output current 0~1mA,Referenced to Ground
	Load regulation	±0.01%(no Load to rated load)
	Line regulation	±0.01%。
	Ripple	Pls turn to SEM selection table
	Temperature coefficient	25ppm/℃。
	Stability	±0.02%/hr after 1 hour's warm-up(at 1mA/-1300v)
	Protection	Arcing Protection
Storage temperature		-30℃~+70℃。
Cooling		Natural convection
Humidity		10%~90%RH,no condensing
Dimension		4.17″ H x 7.87″ W x9.84″ D (106.00mm x 200.00mm x250.00mm)。

APPLICATION SPECIFIC

RS-232 DIGITAL INTERFACE

J2	SIGNAL	J2	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 (D)

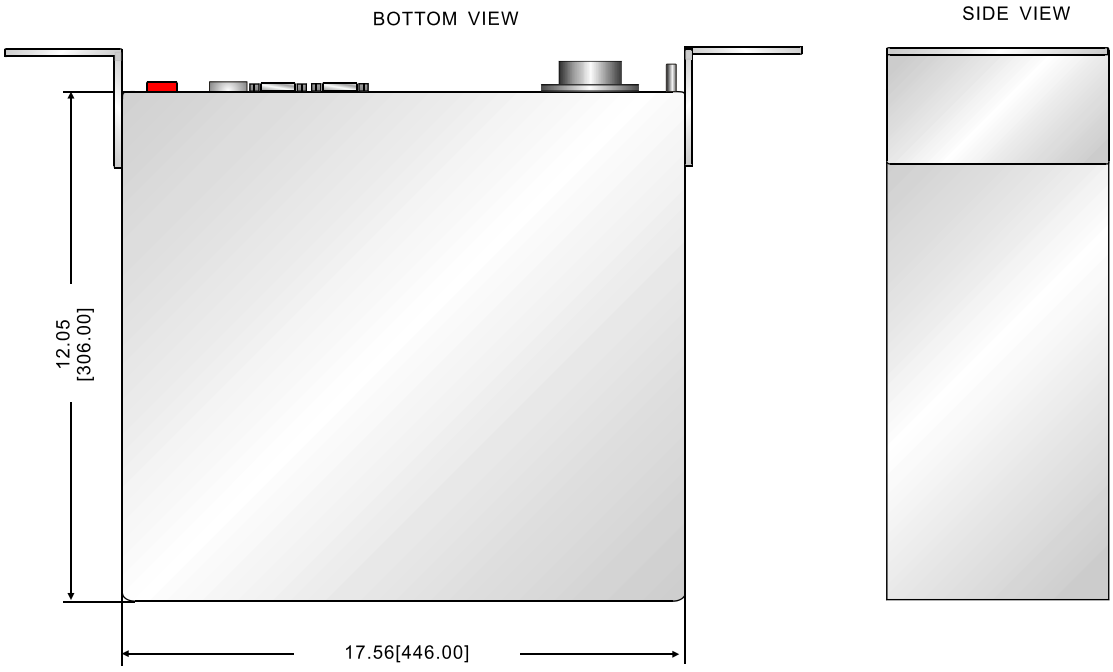
J1	SIGNAL	J1	SIGNAL
1	RX+(Receive+)	6	TX-(Transmit-)
2	RX-(Receive-)	7	N/C
3	TX+(Transmit+)	8	N/C
4	N/C	9	N/C
5	GND		

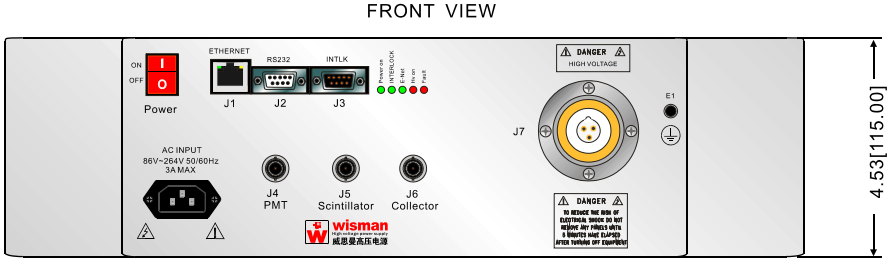
INTLK

J3	SIGNAL	J3	SIGNAL
1	0V	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		

SEM DIMENSION

Unit:inch(mm)





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