

600W Rack mountHVAC-DC
power supplies 

The 600W WJ series is a high quality, high performance, high reliability & high stability high voltage power supply with low ripple & noise, being air insulated it facilitates a lower cost of ownership, as well as being lighter compared to competing products & though various output control options, input voltages, low output discharge currents makes integrating this power supply into a new system or tool simple.

It has been designed for electrical design engineers & system integration engineers in a wide range of industries including Ion implant, E-beam welding & E-beam additive manufacturing & many other application specific markets who are challenged with limited high voltage integration experience & tight timelines.



Features

- ▶ Output voltages 0-70kVDC to 0-125kVDC
- ▶ 3U 19" rack mount
- ▶ RS232/USB control & monitor standard, Ethernet is optional
- ▶ Output voltage & current regulated
- ▶ Low ripple <0.03% RMS of rated voltage at full load
- ▶ Voltage & current monitor outputs
- ▶ Single phase AC input
- ▶ Efficiency >85%
- ▶ Air Insulated
- ▶ Short circuit, arc & overload protection
- ▶ CE marked for EMC, low voltage (LVD) & RoHS directives
- ▶ Operating temperature: -20°C to +40°C
- ▶ 3 year warranty

Applications



- ▶ Ion implant
- ▶ E-beam/Ion beam
- ▶ Industrial technology
- ▶ Capacitor charging
- ▶ High voltage bias

Dimensions

132.54 x 482.6 x 520.7 mm (5.25" x 19" x 20.5")
3U 19" rack mount

More resources

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Models & ratings

Positive polarity	Negative polarity	Reversible polarity	Output voltage	Output current	Max. stored energy	Output cable ⁽³⁾
WJ70P8.6	WJ70N8.6	WJ70R8.6	0 - 70kV	0 - 8.6mA	8.0J	DS2121
WJ80P7.5	WJ80N7.5	WJ80R7.5	0 - 80kV	0 - 7.5mA	9.0J	DS2121
WJ100P6	WJ100N6	WJ100R6	0 - 100kV	0 - 6.0mA	11.0J	DS2121
WJ125P5	WJ125N5	WJ125R5	0 - 125kV	0 - 5.0mA	15.0J	DS2121

Notes:

1. Detachable, 3.5m (10ft), shielded high voltage coaxial cable (see models & ratings for cable type), 1.8m (6ft) NEMA 5-15 line cord, 1.8m (6ft) NEMA 6-15 line cord, 3m (10ft) null modem cable and 3.5m (10ft) USB cable are provided.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	102		132	V RMS	Single phase. User selectable via rear panel switch. Shipped set for 198 to 264.
	198		264	V RMS	
Input frequency	48		63	Hz	
Input connector	C14 connector per IEC60320 with mating line cord.				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage range	0		125	kV	See models and ratings table.
Output current range	0		8.6	mA	See models and ratings table.
Polarity	Available with either positive, negative or reversible polarity with respect to chassis ground.				
Output control	Continuous, stable adjustment, from 0 to rated voltage or current by panel mounted optical rotary encoder or by external +10V signals.				
Static voltage load regulation	±0.005			%	For specified line variations.
	0.005			%	For no load to full load variations.
Dynamic voltage regulation	For load transients from 10% to 99% and 99% to 10%, typical deviation is less than 2% of rated output voltage with recovery to within 1% in 500 us and recovery to within 0.1% in 1 ms.				
Stability		0.01		%	Per hour after 30 min. warm up.
		0.05		%	Per 8 hours.
Temperature coefficient		0.01		%/°C	
Voltage rise time constant		400		ms	For all models using either HV enable or remote programming control
Voltage decay time constant		400		ms	With a 15% resistive load.
Ripple	0.1			% RMS	At full load.
Optical rotary encoder resolution		0.025%		%	With Fine Adjustment mode selected.
		0.25%		%	With Coarse Adjustment mode selected (default).
Repeatability			0.1	%	
Current regulation	0.1			%	When in current regulation mode, for short circuit to rated output voltage, at any load.
Arc count	Internal circuitry senses the number of arcs caused by external load discharges. If the rate of consecutive arcs exceeds approximately one arc per second for five arcs, the supply will turn off for approximately 5 seconds to allow clearance of the fault. After this period the supply will automatically return to the programmed kV value with the rise time constant indicated. If the load fault still exists, the above cycle will repeat.				
Arc quench	An arc quench feature provides sensing of each load arc and quickly inhibits the HV output for approximately 20ms after each arc.				
Slow start	Adjustable ramp time from 0 to 30 seconds. Output ramps from 0V to programmed voltage level.				

Notes:

- Specifications apply from 5% to 100% rated voltage.
- Operation is guaranteed down to 0 voltage with a slight degradation of performance.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	85			%	At full load.
HV insulating medium	Outputs are air insulated.				
External interlock	Open = OFF, closed = ON. Normally latching except for blank front panel version where it is non-latching				
Remote HV enable/disable	0 to 1.5V = OFF; 2.5 to 15V = ON				
Voltage accuracy	0.5% of setting +0.2% of rated				
Voltage monitor	0 to +10V, equivalent to 0 to rated voltage, with an accuracy of 0.5% of reading +0.2% of rated. Output impedance is 10kΩ.				
Current monitor	0 to +10V, equivalent to 0 to rated current, with an accuracy of 1% of reading +0.1% of rated. Output impedance is 10kΩ.				
RS232/USB/Ethernet programming & monitor accuracy	Resolution	0.025% of full scale for both the voltage and the current programs. 0.1% of full scale for both the voltage and the current monitors.			
	Remote setting accuracy	Voltage setting accuracy is better than 0.5% of setting +0.2% of rated.			
	Remote reading accuracy	Voltage reading accuracy is 0.5% of reading +0.2% of rated. Current reading accuracy is 1% of reading +0.1% of rated.			

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-20		+40	°C	
Storage temperature	-40		+85	°C	
Protection	Automatic current regulation protects against all overloads, including arcs and short circuits. Thermal switches and RPM sensing fans protect against thermal overload. Fuses, surge-limiting resistors, and low energy components provide ultimate protection.				
RoHS	Restriction of the use of Hazardous Substances				

EMC: emissions

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN61000-6-4		
Radiated	EN61000-6-4		

EMC: immunity

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN61000-6-2:2005		
Radiated	EN61000-6-2:2005		
Line harmonics	EN61000-3-2		

Safety approvals

Certification	Standard	Notes & conditions
EN	EN61010/IEC61010	Safety
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Notes:

1. Full compliance with European Directives for WJ Series models ordered with F22 option.
2. Specifications apply from 5% to 100% rated voltage.
3. Operation is guaranteed down to 0 voltage with a slight degradation of performance.

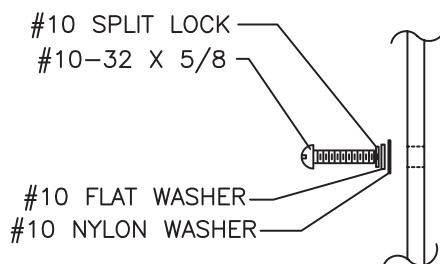
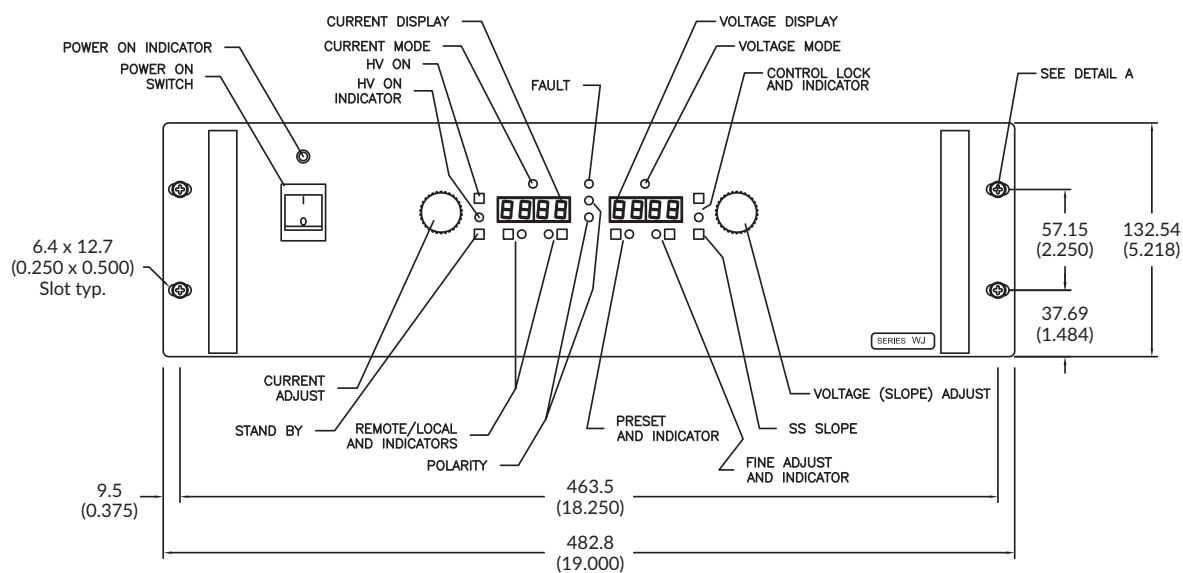


Options

Symbol	Description
A	100/200VAC $\pm 10\%$, 48 to 63Hz. Selectable. Shipped set for 200VAC.
F22	Required for CE Compliance - 230VAC Power Factor Corrected. AC input line rated for 198 to 264VAC, 48 to 63Hz, 800VA maximum. Active correction circuitry achieves an input line current harmonic content well below the maximum specified in EN61000-3-2. (AC Line voltage selector switch removed.) One NEMA 6-15 cord provided.
NC	Blank front panel, power switch and indicator only.
ZR	Zero start interlock. Voltage control, local or remote, must be at zero before the HV will enable.
5VC	0 to 5V voltage and current program/monitor.
AC	Arc Count Only
AQ	Arc Quench Only
ETH	Virtual RS-232 COM port over Ethernet network. (Requires compatible OS (eg Windows) for COM drivers)

Mechanical details

Front view



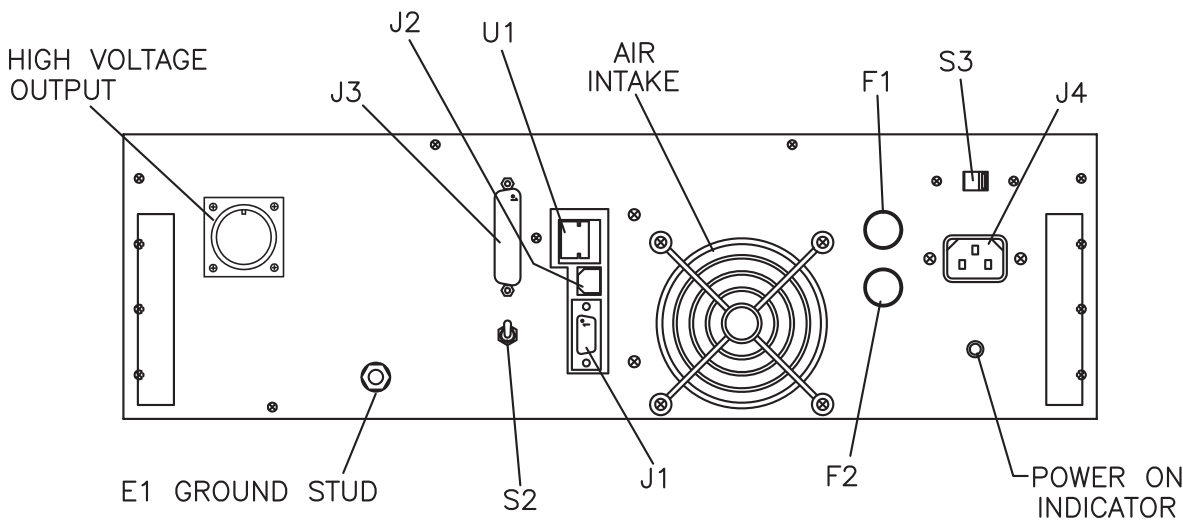
DETAIL A

Notes:

1. All dimensions shown in mm (inches).
2. Weight: 10kg (22lbs) approx.

Mechanical details

Rear view



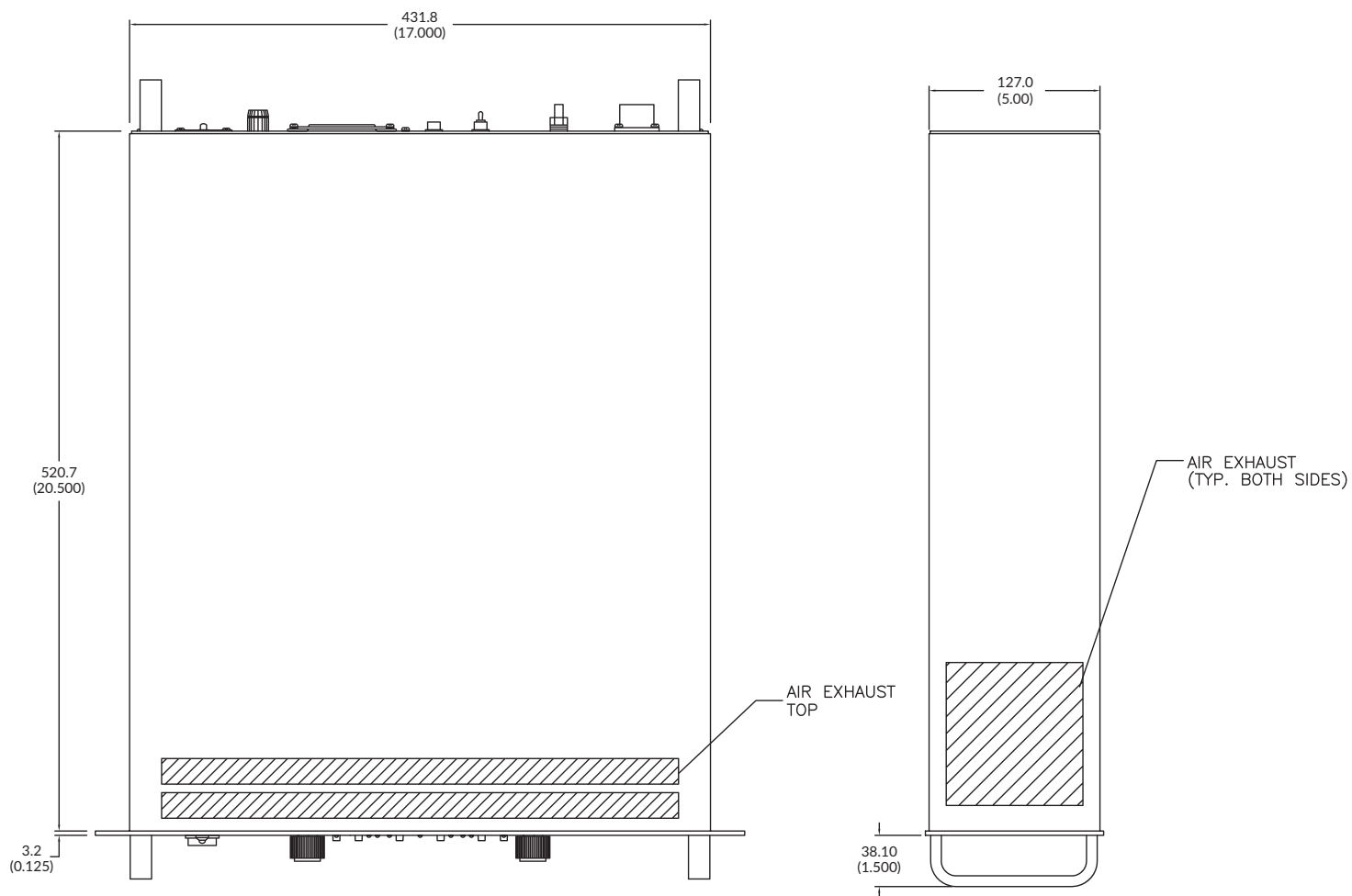
J1		J2		U1 Option		J4	
Pin	Function	Pin	Function	Pin	Function	S2	
1	DCD	1	+5V	1	TXD+	Input receptacle C14 per: IEC60320 (PFC, shown)	
2	RX	2	D-	2	TXD-	Input receptacle C20 per: IEC60320 (Non-PFC)	
3	TX	3	D+	3	RXD+	CL/CT select	
4	DTR	4	COMMON	4	E POWER+	S3	
5	COMMON			5	E POWER+	115/230VAC selector	
6	DSR			6	RXD-	JHV1: HV output	
7	RTS			7	E POWER-	Type MS3102A-18	
8	CTS			8	E POWER-		

J3					
Pin	Function	Pin	Function	Pin	Function
1	GROUND	10	CURRENT MONITOR	19	RESERVED
2	COMMON	11	COMMON	20	HV ENABLE
3	INTERLOCK	12	REFERENCE	21	HV STATUS
4	RESERVED	13	RESERVED	22	FAULT STATUS
5	RESERVED	14	RESERVED	23	MODE STATUS
6	REMOTE VOLTAGE PROGRAM	15	REMOTE HV ON	24	ARC STATUS
7	REMOTE CURRENT PROGRAM	16	REMOTE HV ON	25	GROUND
8	COMMON	17	RESERVED		
9	VOLTAGE MONITOR	18	RESERVED		



Mechanical details

Front & side view



Notes:

1. All dimensions shown in mm (inches).
2. Weight: 10kg (22lbs) approx.