

# RPSb Series

Programmable DC Power Converters 750W - 12kW



## ■ Features

- Unipolar, bipolar option with polarity reversal switch
- Max current/voltage 300A / 60V. Higher Voltage upon request
- High resolution.
- Current control mode. Voltage control mode optional.
- Real time ppm dynamic calculation
- Data base store 16GB > 30 years without erasing
- Active input filter and Power Factor 1
- Very low harmonic distortion
- Noise immunity
- Temperature stability 5.5 ppm/K. Zero thermal drift with 2 ppm long term stability Optional.
- 93,5% efficiency. Option: 94.5% efficiency.
- Floating/ground connection to be selected with the order. Option: floating/ground connection commanded by software, precision (nA) ground current monitoring for load ground insulation check and ground fuse permanent check.
- Intelligent cooling control with maintenance warning
- User friendly local interface with 7 inch size display
- EPICS control
- MODBUS over TCP/IP control
- DCCT Technology
- Option: remote sensing input channels
- Small size and weight
- Centralized switch-on for a group of power sources



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## ■ Specification

OUTPUT	RPSu models by Max Output Current	50A, 100A, 150A, 200A, 300A	
	RPSu models by Max Output Voltage	15V, 30V, 45V, 60V	
	Maximum Output power	12kW (3x400V input)	10kW (3x200V input)
	Polarity	Unipolar *Note 1	
	Current adjustment range	0,5 – 100%	
	Voltage adjustment range	0,5 – 100%	
	Ripple & Noise	≤ 100mVpp *Note 2 (Option ≤ 10mVpp)	
	Switching Frequency	100Khz (200Khz Output)	
	Insulation	1000V when floating	
INPUT	Input Voltage	110V .....480V *Note 3	
	Input Frequency	50....60Hz	
	Input Module	Vienna rectifier technology	
	Power Factor Correction	Active	
	Power Factor	1	
	Input Filter	Active	
	Harmonyc Distortion THD	3%	
	Efficiency	93.5% (Option 94.5%)	
	MAX AC Current	32 Arms	
	Inrush Current	Soft Start, no Inrush current	
Precision CC mode	Temperature stability	5 ppm/K (Option 0 ppm/K Electronics Thermalized with Peltier ±0,1°C with 2ppm stability)	
	Accuracy	2 ppm	
	Setting Range	0,5% to 100%	
	Setting Resolution	22.5 bit (<100uA)	
	Readback Resolution	31 bit slow loop 24 bits fast loop	
	Line Regulation ±10% mains voltage	±5 ppm/FS	
	Load Regulation ±10% load change	±5 ppm/FS	
Remote Sensing Compensation (Option)	> 3V		
NOTE	1 Bipolar option with polarity reversal switch. 2 Ripple & noise frequency 1Hz to 200kHz. 3 Power derating by safe operating area (SOA).		

Control	Programmable Ramp function	0,001A/S to 3000A/S OR Step Response
	Control Modes	1 Constant current 2 Constant voltage (Option) 3 Hybrid (Option) 4 Constant Power (Option) 5 Analog voltage (Option) 6 Analog current (Option) 7 Function generator
	Loop adjustment	Open PIDs by software (Local or Remote)
	Closed loop bandwidth	50 kHz (20µs)
	Precision Sensor	DCCT 2ppm
Ground connection	Options	Floating / Ground to be selected with
	Selection (Option)	By software (Local or Remote)
	Ground Leaks Monitoring (Option)	From 20mA (accuracy 0,5%) to 40nA (accuracy 10%)
	Ground Insulation	1000V When floating
Local control	Display	7" Touchscreen
	Operating System	Android (Linux)
Remote control	Digital Protocols	EPICS (Ethernet Driver) Ethernet 10/100/1000 TCP-IP (MODBUS)
	Analog Control by voltage (Option)	0-10V With Trigger (Auxiliar Digital Input)
Ports	Type	3 USB, 1 HDMI, 1 ETHERNET
Data Storage	Data Storage period	30 Years
Modularity	Parallel Connection	Yes in Current mode
	Series Connection (Option)	Yes in Voltage mode
General	Dimension	width ½ 19 "rack, height 4U 15Kg
	Operating temperature	0...40°C
	MTBF	≥150,000 hrs
	Air Flow (Option)	Air flow gauge < 7 m/s show warning to clean the filter
	Freewheeling protection	Diode 300A
	Output Leads (Option)	Gold plated
	Applications	<ul style="list-style-type: none"> <li>• Particle accelerator magnets supply</li> <li>• Test &amp; Measurement systems</li> <li>• Medical Imaging and treatment systems</li> <li>• Semiconductor Processing</li> </ul>

Interlocks	Input	1 hardware (fast speed, not controlled by software) 3 hardware (fast speed, not controlled by software) (Option) 1 External trigger (for analog control) (Option)
	Output (Option)	2 mechanical relay (slow speed) NO-NC 1 solid state (fast speed)
	Errors (RPSu forces emergency stop)	<i>Vienna Interlocks:</i> Overcurrent, Overvoltage, Voltage Symetry, Air Flow (Option), Communications, Temperature > 90°C (Option), Synchronization.  <i>ZVS Interlocks:</i> Temperature > 90°C (Option), Primary Current, 1 Hardware Interlocks (Option 4 hardware interlocks), watchdog, Overvoltage, Communications.  <i>Control Interlocks:</i> ADC 31bits, ADC 24bits, DCCT, Peltier Temperature inside and outside > 60°C (Option), Software Overcurrent, Software Overvoltage, Current desviation, Voltage desviation, Power desviation, Loop oscillation, Communications.
	Warnings (RPSu shows notification)	<i>Vienna Warnings:</i> Phase lost, Underfrequency, Overfrequency, Relay softstart, Setpoint Bus, Temperature > 85°C (Option).  <i>ZVS Warnings:</i> Temperature > 85°C (Option).  <i>Control Warnings:</i> Fuse Ground (Option), Peltier Temperature inside and outside > 55°C (Option), Current loop, Communications 8 Fans, Under Ground Impedance (Programmable) (Option), Failure 8 fans.
	Isolated	Yes, Optoisolated 1000VDC. Relay with 1000VDC (Option)
	Energy activation	Input interlock has own floating power supply with 1000VDC isolation
Cooling	Cooling	Forced-air or water cooling
	Fans Speed	Regulable and Monitored
Extra features	Input	Waveform generator, standard curves or point-by-point
	Output	Real Time PPM in display All variables are shown in graphic display <small>DS RPSb 1.0.0-0002</small>

## MODELS

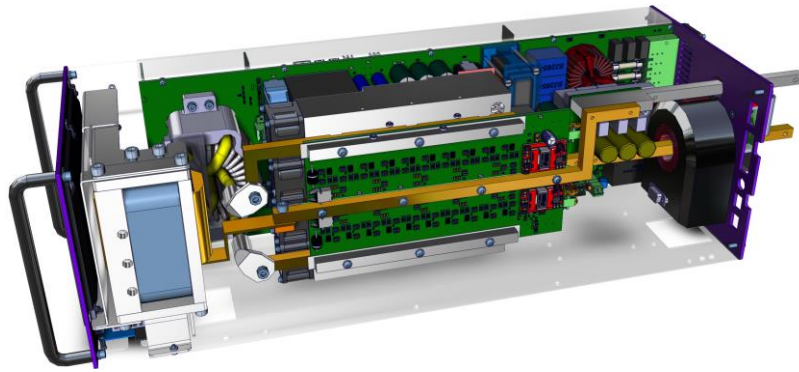


Model	Voltage (V)	Current (A)	Power (W)	Heigh (U)	Weigh (Kg)
RPSb 15-50	15	50	750	4	13
RPSb 15-100	15	100	1.500	4	13
RPSb 15-150	15	150	2.250	4	13
RPSb 15-200	15	200	3.000	4	13
RPSb 30-50	30	50	1.500	4	13
RPSb 30-100	30	100	3.000	4	13
RPSb 30-150	30	150	4.500	4	13
RPSb 30-200	30	200	6.000	4	13
RPSb 45-50	45	50	2.250	4	15
RPSb 45-100	45	100	4.500	4	15
RPSb 45-150	45	150	6.750	4	15
RPSb 45-200	45	200	9.000	4	15
RPSb 60-50	60	50	3.000	4	15
RPSb 60-100	60	100	6.000	4	15
RPSb 60-150	60	150	9.000	4	15
RPSb 60-200	60	200	12.000 *	4	15
RPSb 40-300	40	300	12.000 *	4	15

- 12kW available with 3x400V input. 10kW with 3x200 input
- Higher Voltage than 60V upon request

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