Technical Data Sheet

SA1200-I-X-P-230-XX
1200W

FEATURES

- Cost-Effective
- Support Up to 3800W Peak Power
- 1200 W Max Continuous Output Power
- 4.28” x 10.95” x 1.61” Compact Size
- -20°C to +70°C Operation Temperature Range
- -40°C Power Up Capability
- Support Voltage Trimming
- Build-In Active PFC
- Low Leakage Current
- Intelligent Fan Speed Control
- DC_OK Analog Indication Signal
- Remote Sense, Remote ON/OFF Control
- Active Current Sharing Support
- 5000m Operation Altitude
- 5V/2A Standby Optional
- Support Semi-Custom Design
- CANBus or PMBUS Optional



DESCRIPTION

GENERAL CHARACTERISTIC

Model	SA1200-I-X-P-230-48 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-60 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-72 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-85 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-100 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-120 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-150 1,2kW (3,8kW @5s)	SA1200-I-X-P-230-200 1,2kW (3,8kW @5s)
Output voltage	48V	60V	72V	85V	100V	120V	150V	200V
Rated Current	0-25A	0-20A	0-16.7A	0-14.2A	0-12A	0-10A	0-8A	0-6A
Peak Output Current (max 5s input voltage≥220VAC)	79A	63A	52.8A	44.7A	38A	31.7A	25.3A	19A
Rated Power	1200W							
Peak Power (max 5s input voltage≥220VAC)	3800W							
Dimension	4.28“x10.95”x1.61“ / 108.8mmx278.1mmx41mm							
EMC	CLASS B Conducted and CLASS A Radiated Emissions							

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BASIC CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.
Input				
Rated Input Voltage		100VAC		240VAC
Input Voltage Range		90VAC		264VAC
Input Frequency		47Hz	50/60Hz	63Hz
Input Current	Rated Input Voltage Range			15A
Power Factor	With Max Rated Output Power	0.99		
Efficiency	230VAC, exclude Fan Power			95%
Inrush Current	240VAC			40A
Input Surge Voltage	Last for 1 Second			300VAC
Output				
Output Voltage Trim Range	48V Model	42V	48V	53.5V
	60V Model	54V	60V	66V
	72V Model	65V	72V	79V
	85V Model	80V	85V	90V
	100V Model	90V	100V	110V
	120V Model	110V	120V	132V
	150V Model	132V	150V	150V
	200V Model	190V	200V	200V
Output Power		0W		1200W
Initial Tolerance	Trim in Factory			±0.5%
Total Regulation	Include Line and Load Regulation			3%
Output Ripple	Peak-Peak Value, Measure at 5cm from PSU with 0.1uF Ceramic and 47uF Electrolytic Capacitor, 20MHz BW			1%
Dynamic Response	With 50% Load Step, Min from 5% Load			5%
Capacitive Load	No Special Requirement			
Power Up Time				2s
Rise Time	Without Cap Load			50ms
Hold Up Time	230VAC / 50Hz Input @ 80% Load	12ms		

PROTECTIONS

Function	Minimum	Typical	Maximum	Condition
Input Under Voltage		80Vac		Auto-Restart After Fault is Removed
Over Current Protection (OCP)	>125% Rated Current 5.5s, Protect with Auto-Restart Mode. Auto-Restart Time: 20s≥150Vac >108% Rated Current 5.5s, Protect with Auto-Restart Mode. Auto-Restart Time: 5s<150Vac			
Short Circuit Protection (SCP)				Auto-Restart After Fault is Removed
Over Voltage Protection (OVP)	105%		115%	Latch Off
Over Temperature Protection (OTP)				Latch Off

STANDBY OUTPUT SPECIFICATION

Function	Minimum	Typical	Maximum	Condition
Output Voltage	4.75V	5V	5.25V	0 – 2A Load
Over Current Protection (OCP)	2.5A			Auto-Restart After Fault Is Removed
Short Circuit Protection (SCP)				Auto-Restart After Fault Is Removed

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RELIABILITY

Function	Minimum	Typical	Maximum	Condition
MTBF	500khrs			According to Telecordia Sr-332. 115Vac 25°C Ambient with Rated Load
Life	5 Years			Rated Nominal Conditions

EMC

	Standard
Conducted Emissions	EN 55011 / EN 55032, Class B
Radiated Emissions	EN 55011 / EN 55032, Class A
Note: PFS3000T is a enclosed type PSU as a component intended to be assembled and built inside the system cabinet, PSU normally is to mounted connecting to an earthed metal plate, all the EMC tests are performed with the PSU and resistive loads plated on a metal plate to simulate the system application. The final system must re-evaluate to confirm it can still meet the EMC directives.	
Harmonic Current Emissions	IEC 61000-3-2 Meet Class A limit
Voltage Flicker	IEC 61000-3-3
Electrostatic Discharge	IEC 61000-4-2 Level 4 (Air Discharge: 15 kV, Contact Discharge: 8 kV) Criteria A
Radiated Field	IEC 61000-4-3 Criteria A
Electrical Fast Transient / Burst	IEC 61000-4-4 Level 3 (2 kV), Criteria A
Surge	IEC 61000-4-5 Level 3 (Common Mode 2kV, Differential Mode 1kV), Criteria A
CS	IEC 61000-4-6 Level 2 (150 kHz-80 MHz, 3 Vrms, 6 Vrms at ISM bands and Amateur radio bands), Criteria A
Power Frequency Magnetic Fields	IEC 61000-4-8 Criteria A,Magnetic field strength 30 A/m
Voltage Dips	IEC 61000-4-11 30% 10 ms Criteria A 60% 100 ms Criteria B 100% 5000 ms Criteria B

Criteria A: Normal operation within spec limit

Criteria B: Out of regulation or restart to normal operation after test

SAFETY & CERTIFICATIONS

		Standard
ITE Safety		IEC 62368-1 UL 62368-1+CAN/CSA 62368-1 GB 4943.1-2011, GB 9254-2008, GB 17625.1-2012
CE		EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU
UKCA		In conformance with Electrical Equipment (Safety) Regulations 2016, and Electromagnetic Compatibility Regulations 2016,
Dielectric Voltage	Input to/Output	3000Vac
	Input to/Ground	2000Vac
	Output to/Ground	500Vac

ENVIRONMENTAL

Parameter	Conditions	Value
Operating Temperature Range	See Power Derating Curve Fig.2	-20°C to 70°C
Storage Temperature range		-40°C to +70°C
Storage Humidity	Non-Condensing	10%RH – 90%RH
Operating Altitude		5000m / 16.405 Feet
Operating Humidity	Non-Condensing	10% - 90%
Fan Acoustic Noise	80% Load, 1m Distance	45dB
Shock	With Package	196m/s²
Vibration	10-55Hz (1 min Sweep). 1 Hour for Each Axis. With Package	19.6m/s²

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LEAKAGE CURRENT

Function	Min	Typical	Max	Condition
Input-PE Leakage			500uA	264Vac/50Hz Normal Condition
			1mA	264Vac/50Hz Single Fault Condition
Output-PE Leakage			100uA	264Vac/50Hz Normal Condition
			500uA	264Vac/50Hz Single Fault Condition

OUTPUT DERATING CURVE

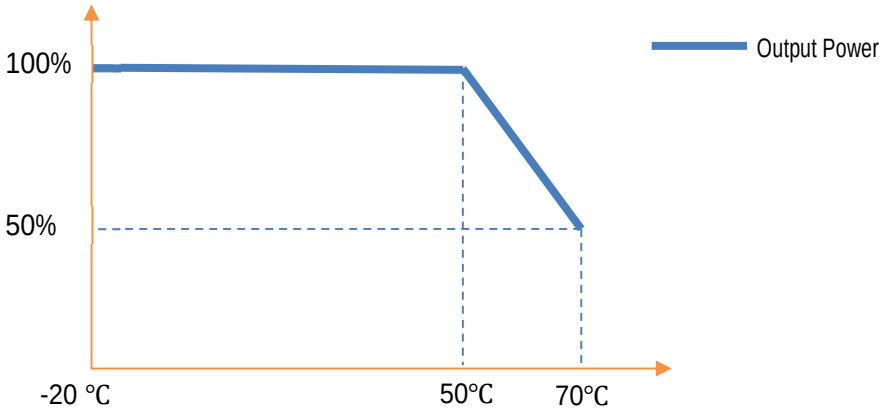
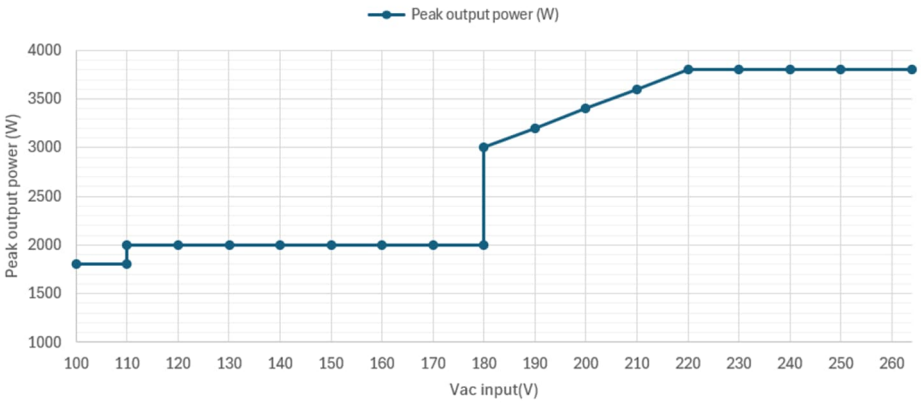


FIG 1. Power Derating Curve vs Input Voltage

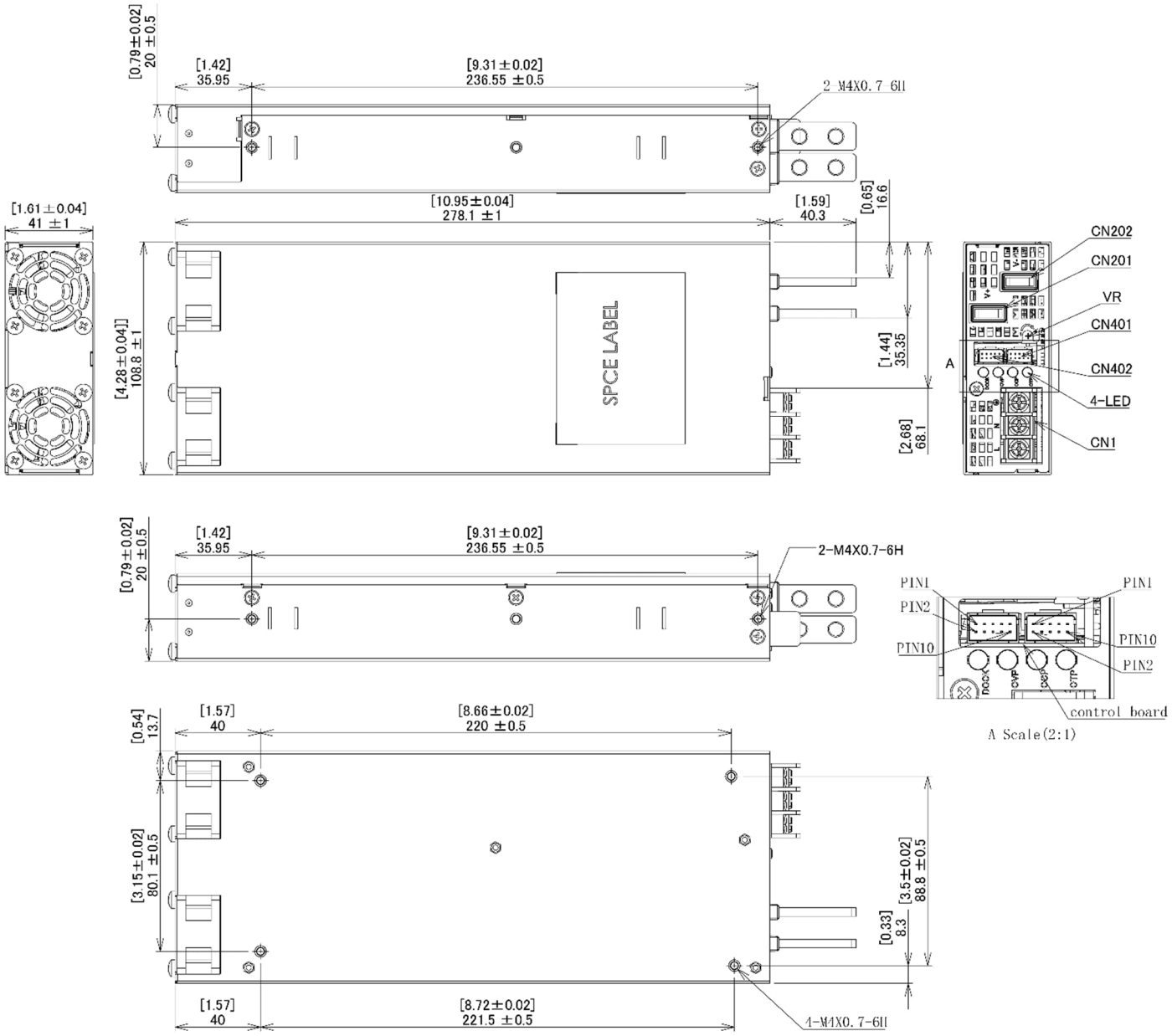
PEAK POWER DERATING CURVE

When the input voltage is 100Vac, the max peak power is 1800W, when the input voltage is in between 110Vac~180Vac, the max peak power is 2000W.
When input voltage is in between 180Vac~220Vac, the peak power capability increases from 3000W to 3800W, when the input voltage is above 220Vac, the max peak power is 3800W.
The max peak power duty is 50%, average power from the PSU is 1200W. $Duty = \frac{ton}{T} (ton \leq 5s)$



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DIMENSION & MECHANICAL DRAWING



Notes:

1. Base plate mounting, M4 thread holes, maximum penetration 3.0 mm (0.12 inch) from outside face of chassis, 10 kgf.cm (8.8 inch.lbs)Max torque
2. Side mounting, M4 thread holes, maximum penetration 4.0 mm (0.16 inch) from outside face of chassis, 10kgf.cm (8.8 inch.lbs) Max torque
3. CN1 is AC input terminal block and with M4 screw in three positions, wire gauge is 10~18 AWG,10 kgf.cm (8.8 inch.lbs) Max torque
4. CN201/CN202 is DC output termianl block and with M6 screw in two positions, 35kgf.cm(30.8inch.lbs) Max torque
5. CN401/CN402 is control or signal connection
6. VR: clockwise is to increase the output voltage, anti-clockwise is to reduce the output voltage

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CONNECTOR AND PIN ASSIGNMENT

Position	Connector / Connection	
Input Connector CN1	M4 screw type terminal connector	
	Enclosure Mark	Designation
	L	Line
	N	Neutral
	⏚	Earth Ground
Main Output Connector CN201/CN202	Output Terminal Blocks, with M4x8 Screw and Plastic Spacer	
	Enclosure Mark	Designation
	Vo+	Output Positive
	Vo-	Output Return
Control Connector CN401	Mating with CJT Connector A2008H-2X5P or Equivalent	
	Pin#	Description
	1	Current Share
	2	Output Return
	3	Remote Sense+
	4	Remote Sense-
	5	Reserve No Connection
	6	Reserve No Connection
	7	Standby_5V
	8	Standby_5V
	9	Standby_5V Return
	10	Standby_5V Return
Control Connector CN402	Mating with CJT Connector A2008H-2X5P or Equivalent	
	Pin#	Description
	1	DC_OK-
	2	DC_OK+
	3	Remote ON/OFF-
	4	Remote ON/OFF+
	5	Reserve No Connection
	6	Reserve No Connection
	7	CANL or SDA
	8	CANH or SCL
	9	CAN 5V+
	10	CAN 5V Return

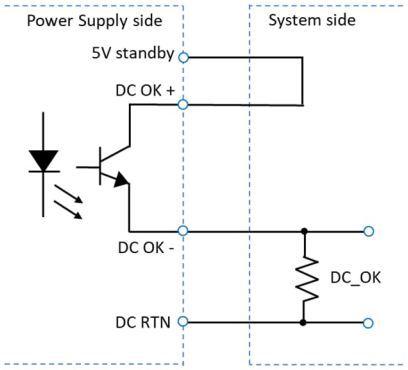
VOLTAGE TRIMMING

The power supply provides a potentiometer for user to adjust the output voltage. Switch the potentiometer clockwise to increase the output voltage, switch the potentiometer counterclockwise to decrease the output voltage.
Please reference to Output Specification for the output voltage range which user shall trim the voltage within.
When the output is adjusted below nominal value, the maximum output current is the same as the nominal output, when the output is adjusted above nominal value, the output power cannot exceed the nominal maximum power (the maximum output current used should be reduced accordingly).

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DC_OK SIGNAL

DC_OK Signal is designed to indicate the main DC output status. When DC output is present, DC_OK Signal (Shown in below figure) generated will be high. When DC output is off, the internal transistor will be turned off. When AC input is off, there will be a minimum of 5 milliseconds between the time the DC_OK internal transistor turns off, and the time when the output reaches 90% of its rated value.

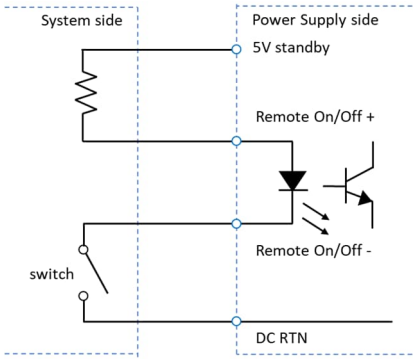


REMOTE SENSE

Remote sense feature can be used to compensate for the extra voltage drop on output wires that are connected from the main output terminals to the load. With wires connected from the remote sense pins, at the same locations as the wires from the main output, the remote sense function can compensate up to 500mV voltage drop.

REMOTE ON/OFF

Remote ON/OFF input can be used to turn off or turn on the power supply main output.The output ON/OFF can be controlled by conducting an isolated diode located within the power supply. When the main output is disabled, the +5 V Standby output will continue to operate. System can use a switch to conduct through this diode (suggested pull up resistor to 5 V standby with 1 Kohm resistor) to disable the main out. The signal can be floated (no connection to the signal), in order to enable the main output.



CAN / I²C COMMUNICATION

CAN bus or Isolated I2C communication comply with PMBus protocol. Please contact RECOM for detail communication specifications.

CURRENT SHARING

SA1200-I-X-P-230-XX series supports current sharing function. Please contact RECOM for detail.

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