Medical

SINPRO

HPA120B series V1.2

120W Medical Power Supply

GENERAL DESCRIPTION:

The series provides a voltage range from 12V to 48V, delivering up to 120 watts of power, suitable for various applications and devices.



Dimensions (W × L × H): 60 x 142 × 32mm

IP22 IP54

FEATURES:

- Input Voltage Range: 70–264 VAC
- Output Voltage: 12V / 15V / 18V / 19V / 24V / 48V
- Operating Temperature: -40 to 70°C
- Surge Immunity: line to line ±2 kV
- Suitable for BF Application
- Protection: OVP, OLP, OTP, SCP
- Meet DoE VII and ErP VII
- Touch current < 0.1 mA
- Operating Altitude: 5000 m (Medical) / 7000 m (I.T.E.)
- Built-In EMI Filter
- High Surge Immunity
- Designed to Meet ISN & 60335
- LED Indicator

OPTIONAL FEATURES: Please Contact Our Sales

- OVC III
- IP54
- Withstand 305 VAC Surge Input for 1 Minute

*IP54 optional. Not recommended for use in environments with continuous high humidity or moisture.

APPLICATIONS:

- Medical Devices
- Telecommunication Devices
- Household Devices
- Consumer Electronics
- Office Electronics
- Industrial Equipment

GENERAL SPECIFICATION:

- **Ingress Protection:** IP22
- **Protection Classes:** Class II
- **Safety:** IEC 60601-1 Edition 3.2, IEC 60601-1-2 Edition 4.1, ANSI/AAMI ES60601-1 Edition 3.2, EN 60601-1 Edition 3.2, EN 60601-1-2 Edition 4.1, EN 55011 Class B, CSA C22.2 NO. 60601-1 Edition 3.2, FCC Part 18 Class B, CE

ELECTRICAL CHARACTERISTICS:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Nominal Input Voltage	100–240 VAC	100		240	VAC
Input Voltage Range	Derate Linearly from 100% load at 90 VAC to 70% load at 70 VAC	70		264	VAC
Input Frequency Range	Sine Wave	47		63	Hz
Power Factor Correction		0.93	0.97		
Output Power	See Rating Chart			120	W
Low Line Input Current	Full Load, Vin=115 VAC			1.2	A
High Line Input Current	Full Load, Vin=230 VAC			0.6	A
Low Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=115 VAC			50	A
High Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=230 VAC			100	A
Touch current	0.1 mA @ 264 VAC Normal Condition			0.1	mA
Average Efficiency	CoC v5 (Tier 2), See Rating Chart	89	93		%
Line Regulation				0.5	%
Load Regulation	Vin=100–240 VAC		2.5	4.5	%
Hold-Up Time	Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.	20			ms
Start-Up Time	Full Load: 100–240 VAC. The product is designed to start optimally when powered within 100–240 VAC.			1	s
Rise Time	At 115 VAC & 230 VAC			50	ms
Isolation	Input to Output	4000			VAC

PROTECTION:

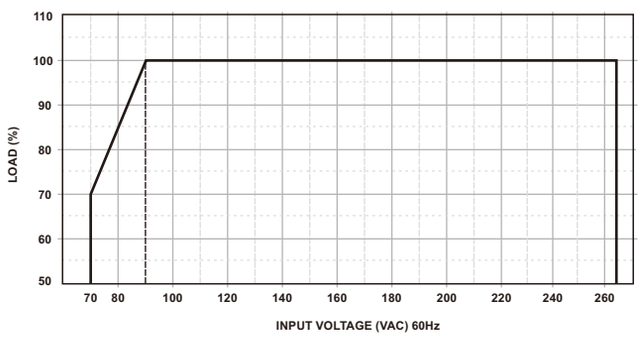
Characteristic	Condition	Min.	Typ.	Max.	Unit
Short Circuit	Hiccup Mode, (Non-Latching, Auto-Recovery)				
Over Temperature	Latch Mode				
Overvoltage	Latch Mode	110		150	%
Overload / Overcurrent	Hiccup Mode, (Non-Latching, Auto-Recovery)	110		180	%

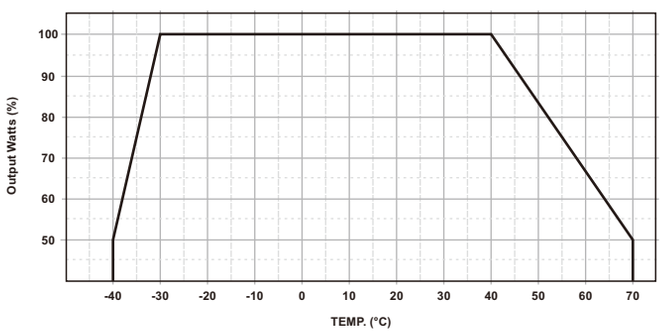
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ENVIRONMENTAL:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Operating Temperature	Derate Linearly From 100% Load at 40°C to 50% Load at 70°C	-40		70	°C
Storage Temperature	Surrounding Air Temperature	-40		85	°C
Temperature Coefficient	All Condition			+0.04	%/°C
Operating Humidity	10–95% RH (Non-Condensing)	10		95%	RH
Storage Humidity		0		95%	RH
Operating Altitude	Up to 5000 m (Medical) / 7000 m (I.T.E.)	5000		7000	m
Vibration	Non-Operating, 5–500 Hz, 2.09 Grms, 20 minute for Each Three Axis			2.09	G

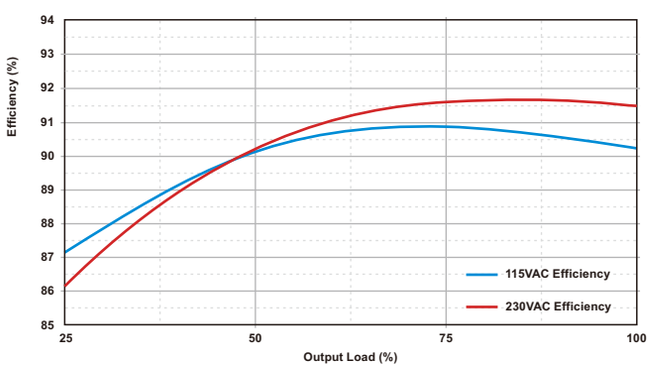
STATIC CHARACTERISTICS & POWER DE-RATING CURVE:



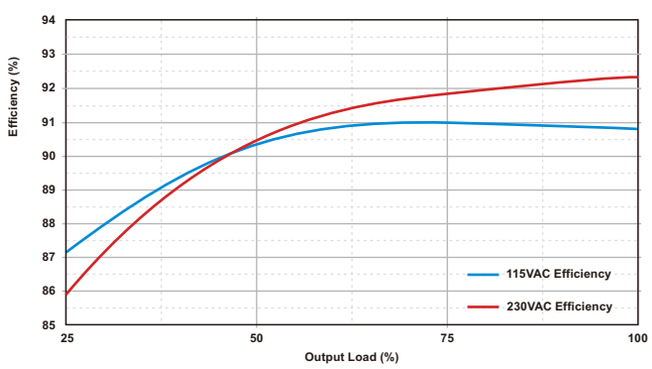


EFFICIENCY VERSUS OUTPUT LOAD:

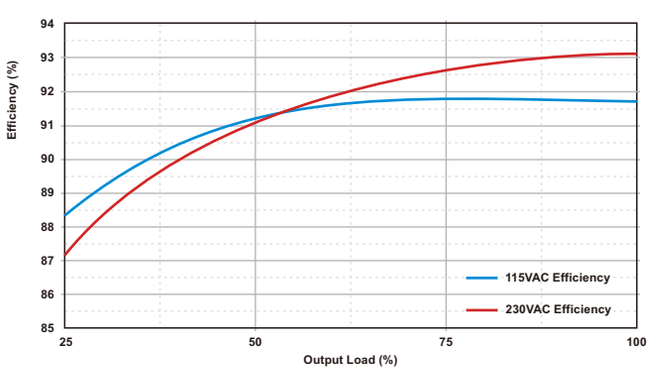
■ HPA120B-120



■ HPA120B-240



■ HPA120B-480



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120W Medical Power Supply

RATING CHART:

MODEL NO.	Rated Output Voltage	Rated Output Current	Maximum Output Power	Ripple & Noise	Total Regulation	Efficiency @115VAC	Efficiency @230VAC	AVG. Efficiency	10% Load Efficiency	Max. No-Load Consumption
	(VDC)	(A)	(W)	(mVp-p)	(%)	(%)	(%)	(%)	(%)	(W)
HPA120B-120	12.0	10.0	120	100	±4.5	89.7	91.3	89.0	83.0	0.15
HPA120B-150	15.0	8.0	120	120	±4.5	90.4	91.8	89.0	83.0	0.15
HPA120B-180	18.0	6.66	120	150	±4.5	90.6	92.4	89.0	83.0	0.15
HPA120B-190	19.0	6.31	120	150	±4.5	90.5	92	89.0	83.0	0.15
HPA120B-240	24.0	5.00	120	150	±3.0	89.6	90.8	89.0	83.0	0.15
HPA120B-480	48.0	2.50	120	150	±2.5	91.6	92.9	89.0	83.0	0.15

* 0-20% Load ripple ≤2% Vo

PRODUCT CODING:

H P A 1 2 0 B - X X X

Series Name

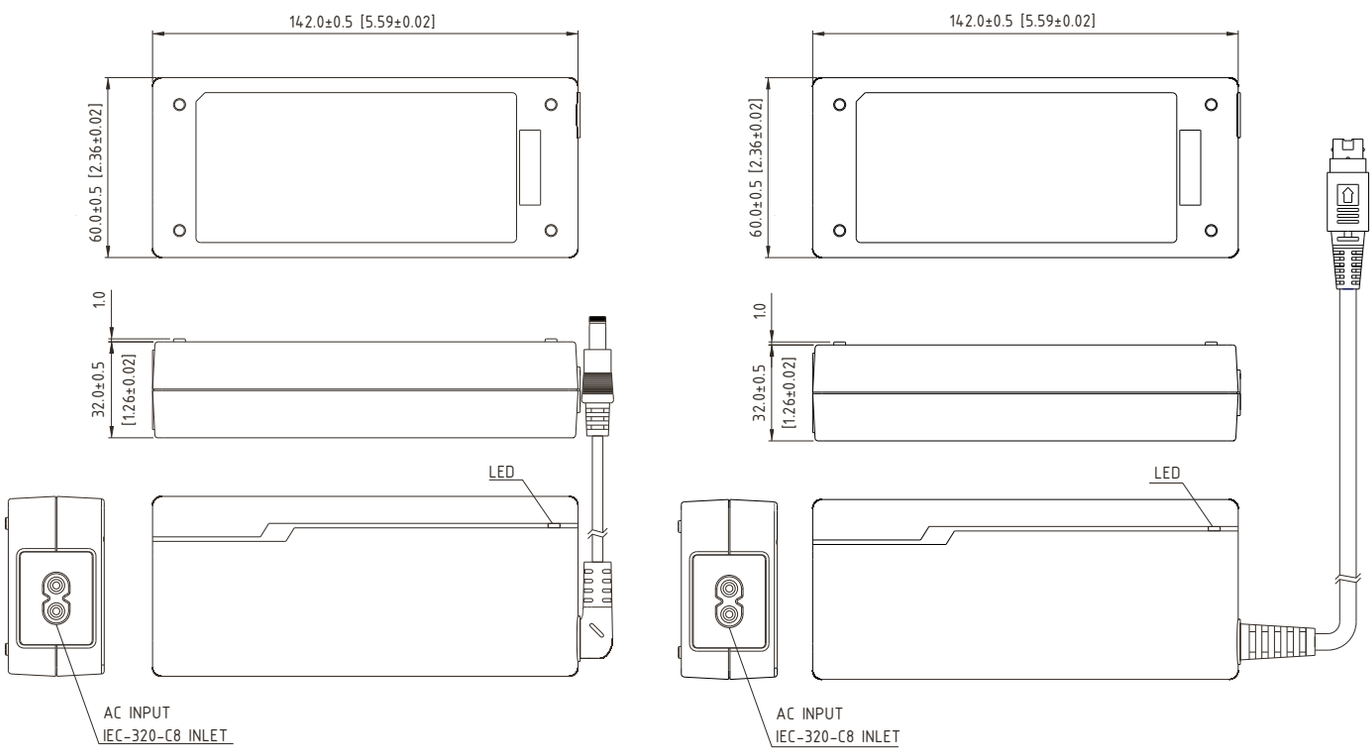
Max. Wattage in the Product

AC Inlet
B: C8 Type AC Inlet

Output Voltage
120: 12V 240: 24V
480: 48V

MECHANICAL DIMENSIONS: (UNIT: mm[inch])

HPA120B



EMC EMISSION:

MEDICAL/ITE	Parameter	Standard	Test Level
MEDICAL	Conducted	EN55011/FCC Part 18	Class B
	Radiated	EN55011/FCC Part 18	Class B
	Harmonics	EN61000-3-2	PASS
	Flicker	EN61000-3-3	PASS

* The EMC test requires the integration of the switching power supply with the load of an end system.
Consequently, variations in the application or assembly of the end system will influence the test results.

EMC IMMUNITY:

MEDICAL/ITE	Parameter	Standard	Test Level	Criteria
MEDICAL	ESD	EN61000-4-2	15 kV Air Discharge, 8 kV Discharge Coupling Plane	A
	RS	EN61000-4-3	-	A
	EFT	EN61000-4-4	2 kV	A
	Surge	EN61000-4-5	Line to Line ±2 kV	A
	CS	EN61000-4-6	0.15–80 (MHz)	A
	PFMF	EN61000-4-8	-	A
	Voltage Dips (230V & 100V)	EN61000-4-11	0% UT, 0.5 cycle (10ms) @ Full Load 0°/45°/90°/135°/180°/225°/270°/315°/360°	A
			0% UT, 1 cycle (20ms), 0° @ Full Load	A
			70% UT, 25 cycle (500ms), 0° @ Full Load	A
	Voltage Interruptions (230V & 100V)	EN61000-4-11	0% Ut, 250 cycle (5s) @ Full Load 0°/45°/90°/135°/180°/225°/270°/315°/360°	B

* The EMC test requires the integration of the switching power supply with the load of an end system.
Consequently, variations in the application or assembly of the end system will influence the test results.

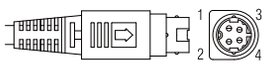
OTHERS:

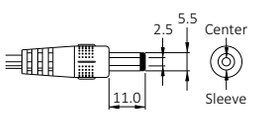
MEDICAL / ITE	Condition	Min.	Typ.	Max.	Unit
MTBF (typ.)	1 Million Hours Based on Telcordia SR-332 (at 115 VAC, Max. load and 25°C Ambient)		1000 k		h
Net Weight	HPA120B-120 with a 16 AWG, 3ft Standard Cable		450		g

OUTPUT CABLE RECOMMENDATION:

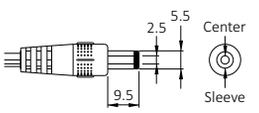
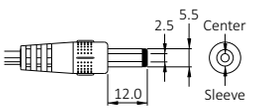
1. Selected output connectors and wire, please refer to the appendix.
2. 12–15 V are required to use 16 AWG, 3fy, UL2464, 80°C output cable.
3. 18–19 V are required to use 16 AWG, 4ft, UL2464, 80°C output cable.
4. 24 V are required to use 18 AWG, 4ft, UL2464, 80°C output cable.
5. 48 V are required to use 20 AWG, 4ft, UL11353, 80°C output cable.
6. The plug must comply with 7A, 30m ohm max.

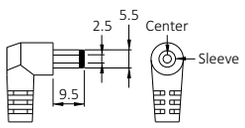
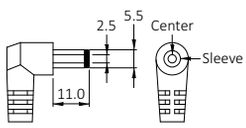
STANDARD CONNECTOR:

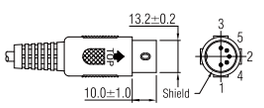
POWER DIN-4 + Lock	Plug PN	Standard Connection	Wire Material	Wire Type
	P09B	P1,P2=OUT P3,P4=RTN SHIELD=GND	UL2464	12–15 V: 16 AWG / 3ft 18–19 V: 16 AWG / 4ft 24 V: 18 AWG / 4ft

Barrel Female Plug	Plug PN	OD	ID	L	Standard Connection	Wire Material	Wire Type
	P01N	5.5	2.5	11	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL11353	15 V: 14 AWG / 4ft 18–19 V: 16 AWG / 4ft 24 V: 18 AWG / 4ft 48 V: 20 AWG / 4ft

OPTINONAL CONNECTOR:

Barrel Female Plug	Plug PN	OD	ID	L	Standard Connection	Wire Material	Wire Type
	P01M	5.5	2.5	9.5	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL11353	15 V: 14 AWG / 4ft 18–19 V: 16 AWG / 4ft
	P01S	5.5	2.5	12			24 V: 18 AWG / 4ft 48 V: 20 AWG / 4ft

Barrel Angle Female Plug	Plug PN	OD	ID	L	Standard Connection	Wire Material	Wire Type
	P02M	5.5	2.5	9.5	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL11353	15 V: 14 AWG / 4ft 18–19 V: 16 AWG / 4ft
	P02N	5.5	2.5	11			24 V: 18 AWG / 4ft 48 V: 20 AWG / 4ft

DIN-5 Male Plug	Plug PN	Standard Connection	Wire Material	Wire Type
	P05B	P1,P2,P4=RTN P3,P5=OUT SHIELD=GND	UL2464	12–15 V: 16 AWG / 3ft 18–19 V: 16 AWG / 4ft 24 V: 18 AWG / 4ft
			UL11353	48 V: 20 AWG / 4ft

* Please contact our sales team for detailed information regarding optional output connectors.