E-Star Power Development Co., Ltd. (E-STAR)
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Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

150W Desktop type Medical power supply < HPU150A

HPU150A series V2.2

The HPU150A series of AC/DC switching mode power supplies provide 150 Watts of continuous output power . All supplies are UL94V-1 min compliant. All models meet FCC Part-18, CISPR-11 and EN55011 class B emission Limits, IEC 60601-1-2:2014 and are designed to comply with UL/cUL and conformity assessment in CE marking. All units are 100% burned in and tested.

RoHS2 2011/65/EU

5K

APPROVALS:

150W External Medical Grade Power Supply

FEATURES:

* Wide Operating Voltage, 90 to 260 VAC, 47 to 63 Hz
* IEC-320-C14 Input Inlet
* Single Output
* Over Voltage Protection
* Input to Output : 2MOPP
* Active Power Factor Correction
* High ESD immunity
* Suitable professional healthcare facility
* Low earth leakage current < 0.25mA
* DoE VI
* 3 year warranty

APPLICATIONS:

* Patient Monitor
* Ultrasound system
* Portable medical device
* Blood chemistry analyzer
* Medical Image

GENERAL SPECIFICATION:

* **Short Circuit Protection**: Auto Recovery
* **Cooling**: Free Air Convection
* **Flammability Rating**: UL94V-1
* **Protection Classes**: Class I
* **Safety**: IEC60601-1 Edition3.1, ES60601-1:2005(R2012), CSAC22.2 NO.60601-1:14, EN60601-1:2006/A1:2013

Electrical Characteristics:

Symbol	Characteristic	Condition	Min.	Typ.	Max.	Unit
Vins	Safety Approval Input Voltage Range	Safety Approval & Specification in Label	100		240	VAC
Vin	Input Operate Voltage Range	Detail to see Fig.1	90		260	VAC
Fi	Input Frequency	Sine wave	47		63	Hz
PF	Power Factor Correction		0.95		1	
Po	Output Power Range	See Rating Chart			150	W
Iil	Low Line Input Current	Full Load, Vin=100VAC		2		A
Iih	High Line Input Current	Full Load, Vin=240VAC		0.8		A
Irl	Low Line Input Inrush Current	Full Load, 25°C, Cool start, Vin=100VAC			60	A
Irh	High Line Input Inrush Current	Full Load, 25°C, Cool start, Vin=240VAC			120	A
Ik	Safety Ground Leakage Current	Vin=240VAC, Fi=60Hz			0.25	mA
η	Efficiency	Full Load, Vin=230VAC, Detail to see Rating Chart	See Rating Chart			
▵Voi	Line Regulation	Full Load, Vin=100~120VAC or 200~240VAC			1	%
OVP	Over Voltage Protection	Latch off, recycle input to reset	112		132	%
OLP	Over Load Protection	Recovers automatically after fault condition is removed	103		160	%
ttr	Time of Transient Response	Io=Full Load to Half Load, Vin=110VAC			4	ms
thu	Hold-Up Time	Full Load, Vin=110VAC	See Rating Chart			
ts	Start-up time	Full Load, Vin=100~240VAC			2	s
Ris	Insulation Resistance	Primary to Secondary, 500VDC,25°XC/ 70% RH	50			MΩ
Tc	Temperature Coefficient	All Condition			±0.04	%/°C
HV	Dielectric Withstanding Voltage (P-S)	Primary to Secondary, limit current <10mA			4000	VAC
Vpg	Dielectric Withstanding Voltage (P-G)	Primary to PE, limit current <10mA			1500	VAC
EMI	EMC Emission	Compliance to EN55011 (CISPR11), EN60601-1-2	B			Class

Environmental:

Symbol	Characteristic	Condition	Min.	Typ.	Max.	Unit
To	Operating Temperature	Detail to see Fig.2 (Derate linearly from 100% load at 40°C to 50% load at 70°C)	-10		70	°C
Ts	Storage Temperature	10 ~ 95% RH	-40		85	°C
Ho	Operating Humidity	non-condensing	0		95%	RH
Hs	Storage Humidity		0		95%	RH
ESDa	Electro Static Discharge	Air Discharge, IEC61000-4-2			15	kV
ESDc	Electro Static Discharge	Contact Discharge, IEC61000-4-2			8	kV
MTBF	Mean Time Between Failure	Operating Temperature at 25°C, Calculated per MIL-HDBK-217F	200k			h
ELEV	Operating Altitude (Elevation)	All condition			5000	m
VBR	Vibration	10 ~ 500Hz, 10min./1cycle, 60min. each along X, Y, Z axes			5	G
Vsl	Surge Voltage	Line-Neutral			1	kV
Vsg	Surge Voltage	Line-PE & Neutral-PE			2	kV

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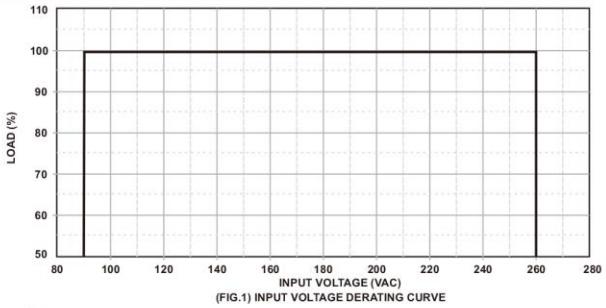
150W External Medical Grade Power Supply

SPECIFICATION NOTE :

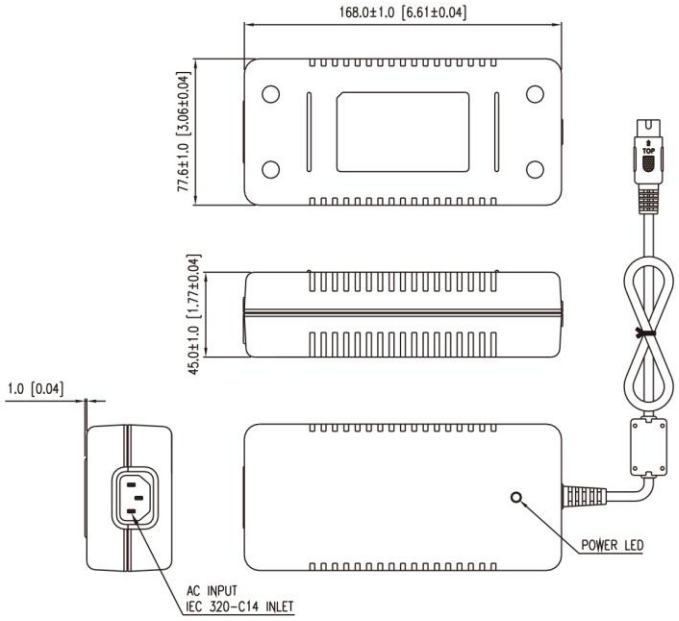
1. Output can provide up to peak load when the power supply starts up. Continuous staying in more than rated load is not allowed.
2. At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
3. Line regulation is defined by changing ±10% of input voltage from nominal line at rated load.
4. Load regulation is defined by changing ±40% of measured output load from 60% rated load.
5. The ripple is measured from peak to peak with a bandwidth-limit of 20MHz (Measured at the output connector with a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor).
6. 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.
7. Efficiency is measured at rated load, and nominal line.



(FIG.1) INPUT VOLTAGE DERATING CURVE

(FIG.2) TEMPERATURE DERATING CURVE

MECHANICAL DIMENSIONS: (UNIT: mm)



OUTPUT CABLE RECOMMEND :

1. Selected output connectors and wire, please refer to Appendix.
2. HPU150A-105~107 is required to use AWG#16/5C/4FT output cable.
3. HPU150A-108~111 is required to use AWG#14/2C/4FT output cable.
4. The regulation and efficiency will be changed by modified output cable.
5. HPU150A-105~111 output cable must with core.

PACKING :

1. Net weight: 720~750g approx.
2. Optional output connectors available contact sales for details.

Rating Chart:

MODEL NO.	Setting Voltage Range (Factory setting, can't be adjusted)	Output Current (Based on the output volt.)	Maximum Output Power	Ripple & Noise	Total Regulation	Typ. Efficiency	Typ. No Load Consumption	Hold-Up Time	Protection Mode
	(VDC)	(A)	(W)	(mVp-p)	(%)	(%)	(W)	(ms)	
HPU150A-105	12.0	12.5	150	120	±5	90	0.21	20	Hiccup
HPU150A-106	15.0	10.0	150	150	±5	90	0.21	20	Hiccup
HPU150A-107	19.0	7.89	150	190	±5	91	0.21	20	Hiccup
HPU150A-108	24.0	6.25	150	240	±4	91	0.21	20	Hiccup
HPU150A-109	30.0	5.00	150	240	±3	92	0.21	20	Hiccup
HPU150A-110	36.0	4.16	150	240	±3	93	0.21	20	Hiccup
HPU150A-111	48.0	3.12	150	240	±3	93	0.21	20	Hiccup