medical

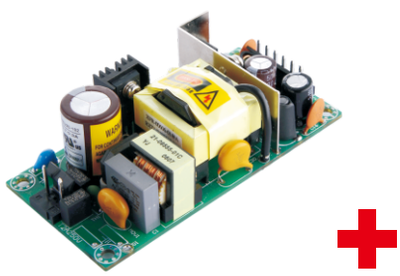
SINPRO

MBU31 series

V1.4

30W Open Frame Medical Grade Power Supply

The MBU31 series of AC/DC switching mode power supplies provide 30 Watts of continuous output power. All models meet FCC Part-18, CISPR-11 and EN55011 class B emission Limits, IEC 60601-1-2 and are designed to comply with UL/cUL, TUV T-mark and conformity assessment in CE marking. All units pass burn-in test at full load condition.



FEATURES:

* Wide Operating Voltage, 80 to 275 VAC, 47 to 63 Hz
* Internal EMI Filter
* Single Output
* Crowbar Mode Over Voltage Protection
* Input to Output : 2MOPP
* High ESD Immunity
* Suitable Professional Healthcare Facility
* 5-Year Warranty

APPLICATIONS:

* Patient Monitor
* Blood Pressure System
* Portable Medical Device
* ECG、EEG
* Medical Tablet

APPROVALS:

GENERAL SPECIFICATION:

* **Short Circuit Protection**: Auto Recovery
* **Cooling**: Free Air Convection
* **Protection Classes**: Class I
* **Safety**: IEC 60601-1 Edition 3.1, IEC 60601-1 Edition 3.2, ANSI/AAMI ES60601-1, CSAC22.2 NO.60601-1, EN 60601-1

Electrical Characteristics:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Safety Approval Input Voltage Range	Safety Approval & Specification in Label	100		240	VAC
Input Operate Voltage Range	Detail to See Fig.1 (Derate Linearly from 100% Load at 90VAC to 80% Load at 80VAC)	80		275	VAC
Input Frequency	Sine Wave	47		63	Hz
Output Power Range	See Rating Chart			30	W
Low Line Input Current	Full Load, Vin=100VAC		0.7		A
High Line Input Current	Full Load, Vin=240VAC		0.3		A
Low Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=100VAC			15	A
High Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=240VAC			36	A
Safety Ground Leakage Current	Vin=264VAC, Fi=63Hz			0.165	mA
Efficiency	Full Load, Vin=230VAC, Detail to See Rating Chart	See Rating Chart			
Line Regulation	Full Load, Vin=100~120VAC or 200~240VAC			1	%
Over Voltage Protection	Recovers Automatically After Fault Condition is Removed	112		132	%
Over Load Protection		110		150	%
Time of Transient Response	Io=Full Load to Half Load, Vin=110VAC			4	ms
Hold-Up Time	Full Load, Vin=110VAC	See Rating Chart			
Start-up time	Full Load, Vin=100~240VAC			2	s
Insulation Resistance		50			MΩ
Temperature Coefficient	All Condition			±0.04	%/°C
Dielectric Withstanding Voltage (P-S)	Primary to Secondary, Limit Current <10mA			4000	VAC
Dielectric Withstanding Voltage (P-G)	Primary to PE, Limit Current <10mA			1500	VAC
EMC Emission	Compliance to EN55011 (CISPR11), EN60601-1-2	B			Class

Environmental:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Operating Temperature	Detail to See Fig.2 (Derate Linearly from 100% Load at 50°C to 50% Load at 70°C)	-10		70	°C
Storage Temperature	10 ~ 95% RH	-40		85	°C
Operating Humidity	Non-Condensing	0		95%	RH
Storage Humidity		0		95%	RH
Electro Static Discharge	Air Discharge, IEC 61000-4-2			15	kV
Electro Static Discharge	Contact Discharge, IEC 61000-4-2			8	kV
Mean Time Between Failure	Operating Temperature at 25°C, Calculated per MIL-HDBK-217F	200k			h
Operating Altitude (Elevation)	All condition			3000	m
Vibration	10 ~ 500Hz, 10min./1cycle, 60min. Each Along X, Y, Z Axes			5	G
Surge Voltage	Line-Neutral			1	kV
Surge Voltage	Line-PE & Neutral-PE			2	kV

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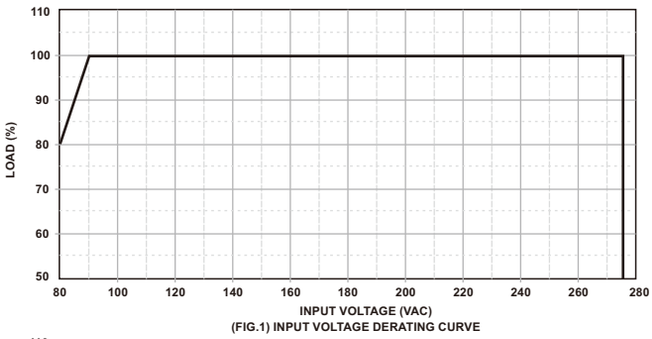
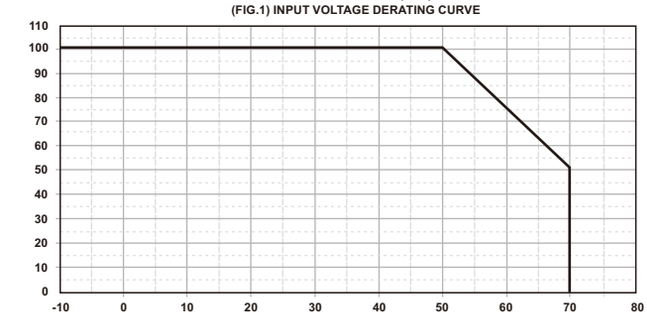
SPECIFICATION NOTE :

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.

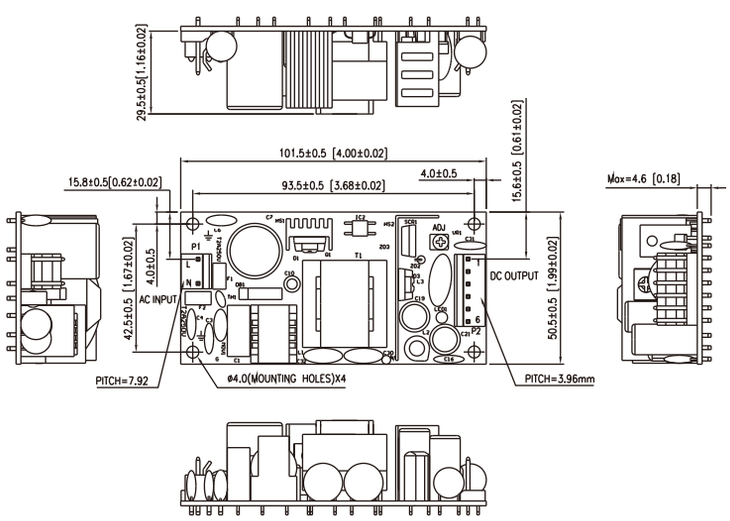


(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE

MECHANICAL DIMENSIONS: (UNIT: mm [inch])



PACKING :

1. Net weight: 200g approx.
2. Input connector mates with Molex housing 09-50-3031and Molex 2478 series crimp terminal
3. Output connector mates with Molex housing 09-50-3061and Molex 2478 series crimp terminal

PIN CHART

MODEL \ PIN	1	2	3	4	5	6
MBU31-1XX	RTN	RTN	RTN	Vout	Vout	Vout

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)	
*MBU31-102	5.0	6.00	30	50	±5	78	0.5	10	Hiccup
MBU31-103	7.0	4.28	30	70	±5	78	0.5	10	Hiccup
MBU31-104	9.0	3.33	30	90	±5	79	0.5	10	Hiccup
MBU31-105	12.0	2.50	30	100	±5	82	0.5	10	Hiccup
MBU31-106	15.0	2.00	30	100	±5	82	0.5	10	Hiccup
*MBU31-107	18.0	1.66	30	100	±5	82	0.5	10	Hiccup
MBU31-108	24.0	1.25	30	100	±3	82	0.5	10	Hiccup
*MBU31-109	30.0	1.00	30	100	±3	83	0.5	10	Hiccup
*MBU31-110	36.0	0.83	30	100	±3	85	0.5	10	Hiccup

[*] =MOQ is required. Please contact sales.

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