Total Power International, Inc.

TPMPU31 SERIES

30W Desk Top Type
Medical Power Supplies

Features:

- Wide Operating Voltage 90 to 264 VAC,47 to 63 Hz
- IEC-320-C14 Input Inlet
- Single to Triple Output
- Over Voltage and Over Load protection
- ANSI/AAMI ES 60601-1: 2005(UL/cUL 3rd Edition)
  EN 60601-1:2006 (TUV/T-mark 3rd Edition)
- Input to Output : 2MOPP
- Energy Star 2.0, Efficiency level V
- Class I
- 3 year warranty

Electrical Characteristics:

Vin	**Safety Approvals Input Voltage Range**		100~240VAC
	Operate Voltage Range		90~264VAC
fin	**Input Frequency**		47~63Hz
Po	**Output Power Range**		See rating chart
Vo	**Output Voltage Range**		See rating chart
Io	**Output Current Range**		See rating chart
Iil	**Input Current (Low Line)**	Io=Full load, Vin=100VAC	0.9A
Iih	**Input Current (High Line)**	Io=Full load, Vin=240VAC	0.34A
Ir	**Low Line Inrush Current**	Io=Full load, 25°C, Cool start, Vin=115VAC	14A (max.)
	High Line Inrush Current	Io=Full load, 25°C, Cool start, Vin=230VAC	28A (max.)
Eff	**Efficiency**	Io=Full Load, Vin=230VAC	67.6~85%
REG-i	**Line Regulation**	Io=Full Load	1% (max.)
REG-o	**Load Regulation**	Vin=230VAC	2~10%
OVP	**Over Voltage Protection**		112~132%
OCP	**Over Current Protection**		110~150%
Ttr	**Time of Transient Response**	Io=Full Load to Half Load, Vin=100VAC	4mS (max.)
Th	**Hold-Up Time**	Io=Full Load, Vin=110VAC	12mS (min.)
Ts	**Start Up Time**	Io=Full Load, Vin=100VAC	0.3~2S
Vp-p	**Ripple & Noise(Peak to Peak)**	Full Load, Vin=90VAC	1~2% (max.)
Ilk	**Safety Ground Leakage Current**	Vin=240VAC/60Hz	0.1mA (max.)
TC	**Temperature Coefficient**	All output	±0.04%/°C
OA	**Operating Altitude**		Up to 3000m
Pno	**No-Load Power Consumption**	No load, Vin=230VAC	See rating chart
Vps	**Dielectric Withstanding Voltage**	Primary to secondary	6802VDC (min.)
Vpg	**Dielectric Withstanding Voltage for Primary to PE**	Primary to PE	2121VDC (min.)
Ris	**Isolation Resistance**	Test Voltage=500VDC	50MΩ (min.)

Note: The Ripple & Noise which is under 3.3VDC at 2% max.
The specifics for testing the energy efficiency of TPMPU31 Series are outlined in a separate document titled "Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies (August 11, 2004)," which is available on the ENERGY STAR Website.

Environmental

To	**Operating Temperature**	See derating curve
Ts	**Storage Temperature**	-40~85°C
Ho	**Operating Humidity**	0~95%
Hr	**Storage Humidity**	0~95%
MTBF	**Operating Temperature at 25°C, Calculated per MIL-HDBK-217F**	0.1M Hrs (min.)
Pd	**Derate linearly from 100% load at 50°C to 50% load at 70°C**	

Application:

- Blood Pressure system
- Portable medical devices
- ECG machine

Safety Approvals:

RoHS 2002/95/EC COMPLIANT

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Output Voltage And Current Rating Chart (Single Output) :

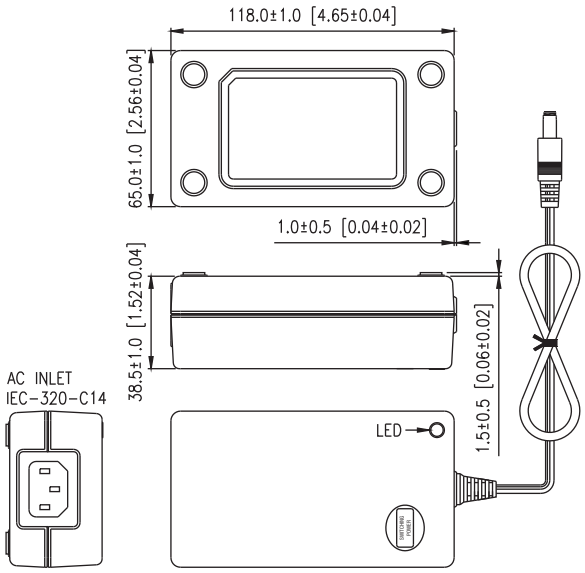
Model Number	Output Voltage	Output Current	Total Regulation	Max. Output Power	Pno (max.)
TPMPU31-101	3 ~ 5 VDC	6.66 ~ 4.00 A	7%	20W	0.3W
TPMPU31-102	5 ~ 6 VDC	5.00 ~ 4.16 A	5%	25W	0.3W
TPMPU31-103	6 ~ 8 VDC	4.16 ~ 3.12 A	5%	25W	0.3W
TPMPU31-104	8 ~ 11 VDC	3.75 ~ 2.72 A	4%	30W	0.3W
TPMPU31-105	11 ~ 13 VDC	2.72 ~ 2.30 A	3%	30W	0.3W
TPMPU31-106	13 ~ 16 VDC	2.30 ~ 1.87 A	3%	30W	0.3W
TPMPU31-107	16 ~ 21 VDC	1.87 ~ 1.42 A	3%	30W	0.3W
TPMPU31-108	21 ~ 27 VDC	1.42 ~ 1.11 A	2%	30W	0.3W
TPMPU31-109	27 ~ 33 VDC	1.11 ~ 0.90 A	2%	30W	0.3W
TPMPU31-110	33 ~ 40 VDC	0.90 ~ 0.75 A	2%	30W	0.3W

Output Voltage And Current Rating Chart (Multi Output) :

Model Number	Output #1				Output #2				Output #3				Max. Output Power	Pno(max.)
	Vonom	Iomin	Iomax	Regmax	Vonom	Iomin	Iomax	Regmax	Vonom	Iomin	Iomax	Regmax		
TPMPU31-200	+3.3V	0.30A	3.0A	7%	+12V	0.13A	1.3A	5%					25W	3W
TPMPU31-201	+5V	0.30A	3.0A	5%	+12V	0.13A	1.3A	5%					30W	3W
TPMPU31-202	+5V	0.30A	3.0A	5%	+15V	0.10A	1.0A	5%					30W	3W
TPMPU31-203	+5V	0.30A	3.0A	5%	+24V	0.07A	0.7A	5%					30W	3W
TPMPU31-204	+3.3V	0.30A	3.0A	7%	+5V	0.16A	1.6A	5%					17.9W	3W
TPMPU31-209	+12V	0.20A	2.0A	5%					-12V	0.05A	0.5A	10%	30W	3W
TPMPU31-210	+15V	0.15A	1.5A	5%					-15V	0.05A	0.5A	10%	30W	3W
TPMPU31-215	+5V	0.30A	3.0A	5%					-24V	0.10A	1.0A	10%	30W	3W
TPMPU31-301	+5V	0.25A	2.5A	5%	+12V	0.11A	1.1A	5%	-5V	0.05A	0.5A	10%	25W	3W
TPMPU31-302	+5V	0.25A	2.5A	5%	+12V	0.10A	1.0A	5%	-12V	0.05A	0.5A	10%	30W	3W
TPMPU31-303	+5V	0.25A	2.5A	5%	+15V	0.10A	1.0A	5%	-15V	0.05A	0.5A	10%	30W	3W
TPMPU31-304	+5V	0.30A	3.0A	5%	+24V	0.10A	1.0A	5%	-24V	0.05A	0.5A	10%	30W	3W
TPMPU31-305	+5V	0.30A	3.0A	5%	+24V	0.10A	1.0A	5%	-12V	0.05A	0.5A	10%	30W	3W
TPMPU31-306	+3.3V	0.30A	3.0A	7%	+12V	0.11A	1.1A	5%	-5V	0.05A	0.5A	10%	25W	3W

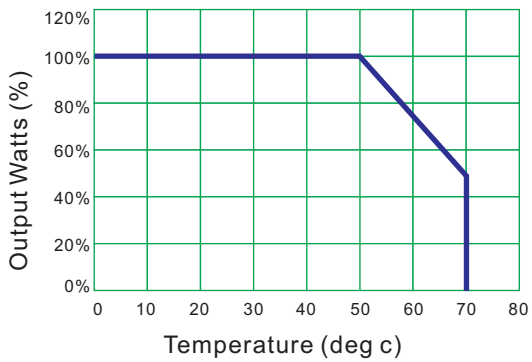
TPMPU31-101~104 are required to use AWG#16 / 4FT output cable.
TPMPU31-105~108 are required to use AWG#18 / 6FT output cable.
TPMPU31-109~110 are required to use AWG#20 / 6FT output cable.
The regulation and efficiency will be changed by modified output cable.

Mechanical Specifications:



Note:
1. Dimensions are shown in mm.
2. Weight: 400~460gs approx.
3. Optional output connector:
   See page Appendix.

Derating Curve :



1. Operating Temperature: 0 to 70°C
2. Derate linearly from 100% load at 50°C to 50% load at 70°C