TRUMPower 30-60 WATT MEDICAL POWER ADAPTERS

TMP60 SERIES

CE (LVD) IV ENERGY STAR

RoHS



DESCRIPTION

The PMP60 is a series of AC/DC switching power adapters consists of 30 to 60 watts single, dual and triple outputs. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC 320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet CISPR 11 and FCC class B emission limits, and are designed for medical applications where low earth leakage current is required.

FEATURES

- **Desktop form factor**
- **Single, dual, or triple outputs**
- **Optional output connectors**
- **100% burn-in**
- **Wide input range 85 to 264VAC**
- **Input surge current protection**
- **Overvoltage protection**
- **Overcurrent protection**
- **Compliant with CEC and Energy Star Efficiency level IV requirements**
  - *** No load power consumption less than 0.5W**
  - *** Average active efficiency ≧85%**
- **Compliant with RoHS requirement**

Safety Standard Approvals:

c UL us — **UL 60601-1**, **CSA C22.2 No. 601.1**

IEC 60601-1 — **TÜV EN60601-1**

INPUT SPECIFICATIONS

Input voltage：	85 to 264 VAC
Input frequency：	47 to 63 Hz
Input current：	1.30A (rms) for 115 VAC 0.70A (rms) for 230VAC
Leakage current：	90uA max. @ 115VAC, 60Hz 150uA max. @ 230VAC, 50Hz

OUTPUT SPECIFICATIONS

Output voltage/current：	See rating chart
Total output power：	See rating chart
Ripple and noise：	2% peak to peak maximum
Overvoltage protection：	Provided on output #1 only; set at 112-140% of its nominal output voltage
Overcurrent protection：	All outputs protected to short circuit conditions
Temperature coefficient：	All outputs ±0.04% /℃ maximum
Transient response：	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500us after a 25% step load change

ENVIRONMENTAL SPECIFICATIONS

Operating temperature：	0℃ to +60℃
Storage temperature：	-40℃ to+85℃
Relative humidity：	5% to 95% non-condensing
Derating：	Derate from 100% at +40℃ linearly to 50% at +60℃

GENERAL SPECIFICATIONS

Switching frequency：	40KHz - 130KHz
Efficiency：	85% minimum on single output models, 65% minimum on the others
Hold-up time：	10 msec minimum at 110VAC
Line regulation：	±0.5% maximum at full load
Inrush current：	50 amps @ 115VAC, or 100 amps @230VAC, at 25℃ cold start
Withstand voltage：	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF：	150,000 hours minimum at full load at 25℃ ambient , calculated per MIL-HDBK-217F

EMC performance (EN60601-1-2)

EN55011:	Class B conducted, Class B radiated
FCC:	Class B conducted, Class B radiated
VCCI:	Class B conducted, Class B radiated
EN61000-3-2:	Harmonic distortion , Class A
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD,± 8KV air and ± 6KV contact
EN61000-4-3:	Radiated immunity, 3V/m for 80~2500MHz
EN61000-4-4:	Fast transient/burst, ± 2KV
EN61000-4-5:	Surge, ± 1KV diff., ± 2KV com.
EN61000-4-6:	Conducted immunity, 3Vrms
EN61000-4-8:	Magnetic field immunity, 3A/m
EN61000-4-11:	Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms and >95% reduction for 10ms

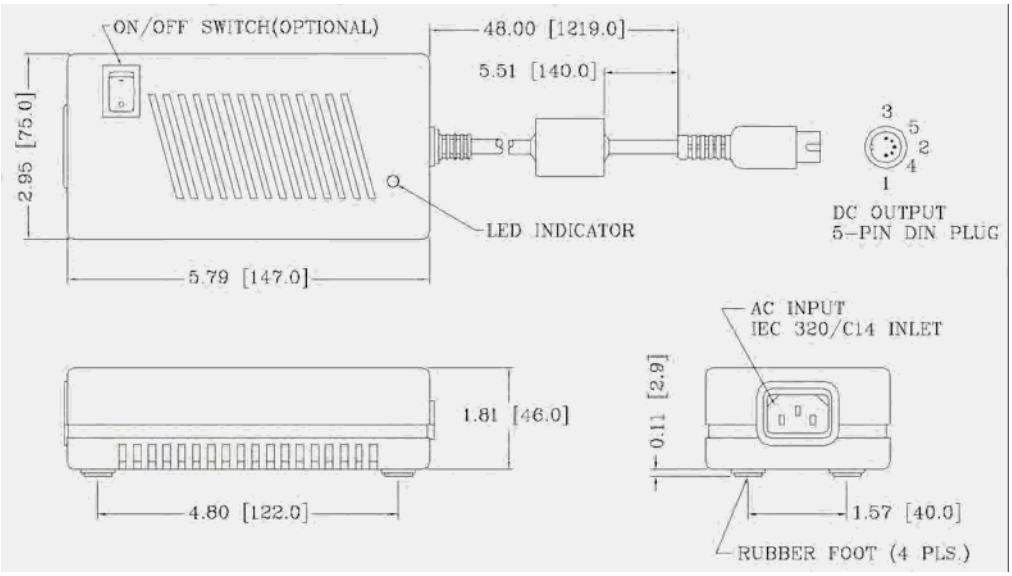
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OUTPUT VOLTAGE/CURRENT RATING CHART

	Output #1				Output #2				Output #3				Maximum Output
*Product No.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Power
TMP60-Sxx	11-13V	0A	5.46A	5%		(N/A)				(N/A)			60W
TMP60-Sxx	13-17V	0A	4.62A	5%		(N/A)				(N/A)			60W
TMP60-Sxx	17-21V	0A	3.53A	5%		(N/A)				(N/A)			60W
TMP60-Sxx	21-27V	0A	2.86A	5%		(N/A)				(N/A)			60W
TMP60-Sxx	27-33V	0A	2.23A	3%		(N/A)				(N/A)			60W
TMP60-Sxx	33-39V	0A	1.82A	3%		(N/A)				(N/A)			60W
TMP60-Sxx	46-50V	0A	1.31A	3%		(N/A)				(N/A)			60W
TMP60-D23	+5V	1A	5.0A	5%	+12V	0.5A	3.0A	5%		(N/A)			40W
TMP60-T30	+3.3V	1A	6.0A	5%	+5V	0.5A	3.0A	5%	+12V	0.1A	0.7A	10%	30W
TMP60-T31	+5V	1A	5.0A	5%	+12V	0.5A	3.0A	5%	-12V	0.1A	0.7A	10%	40W
TMP60-T32	+5V	1A	5.0A	5%	+15V	0.4A	2.3A	5%	-15V	0.1A	0.7A	10%	40W
TMP60-T36	+5V	1A	5.0A	5%	+24V	0.3A	1.5A	5%	+12V	0.1A	0.7A	10%	40W

Notes: (1) For single output models: Specify the output voltage xx when ordering, e.g. TMP60-S12 for 12V output, TMP60-S19.5 for 19.5V output.
(2) Ripple and noise: Peak-to-peak with 20MHz bandwidth and 10uF tantalum capacitor in parallel with a 0.1uF ceramic capacitor at rated line voltage and load ranges
(3) The output voltages of a multiple output model may go outside of the stated tolerance when an output load current is out of stated limits. All models may be operated at no-load without damage.

MECHANICAL SPECIFICATIONS



NOTES:
1. Dimensions show in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 600 grams approx.
4. For other output connector options, please contact TRUMPower.
5. To order a model with on/off switch, add suffix "S" to the model number, e.g. TMP60-S30-S.

PIN CHART

P/N \ PIN	1	2	3	4	5
TMP60-Sxx	RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1
TMP60-D23	COMMOM RETURN	COMMOM RETURN	OUTPUT #1	N.C.	OUTPUT #2
TMP60-T30 TMP60-T31 TMP60-T33 TMP60-T36	COMMOM RETURN	COMMOM RETURN	OUTPUT #1	OUTPUT #3	OUTPUT #2

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