

### DESCRIPTION

The TMP90 is a series of AC/DC desktop power adapters with 60 to 90 watts of continuous output power. They are enclosed in a 94V-1 rated case with an IEC 320/C14 or C18 inlet for medical and ITE applications. All models meet EN55011, EN55022 and FCC class B emission limits, and are designed for medical applications.

### FEATURES

- Low safety ground leakage current
- IEC320/C14 (Class I) or C18 (Class II) Inlet
- 90 to 264VAC wide input range
- Optional output connectors
- Overvoltage & overcurrent protections
- 0.98 PFC
- 100% burn-in
- Compliant with CEC and Energy Star efficiency level IV requirements (except  $\leq 12V$  output models)
- No load power consumption less than 0.5W
- Average active efficiency  $\geq 85\%$
- Compliant with RoHS requirements

### INPUT SPECIFICATIONS

Input voltage :	90 to 264VAC
Input frequency :	47 to 63Hz
Input current :	1.20A (rms) for 115VAC 0.60A (rms) for 230VAC
Earth leakage current :	90 $\mu$ A max. @ 115VAC, 60Hz 150 $\mu$ A 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
Over voltage protection :	Set at 112-140% of its nominal output voltage
Over current protection :	Protected to short circuit conditions
Temperature coefficient :	$\pm 0.04\%/^{\circ}C$ maximum
Transient response :	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change

### ENVIRONMENTAL SPECIFICATIONS

Operating temperature :	0 $^{\circ}C$ to +60 $^{\circ}C$
Storage temperature :	-40 $^{\circ}C$ to +85 $^{\circ}C$
Relative humidity :	5% to 95% non-condensing
Derating :	Derate from 100% at +40 $^{\circ}C$ linearly to 50% at +60 $^{\circ}C$

### TMP90 SERIES

CE (LVD)



RoHS



### Safety Standard Approvals :



UL 60601-1  
CSA C22.2 No. 601.1



TÜV EN60601-1



### GENERAL SPECIFICATIONS

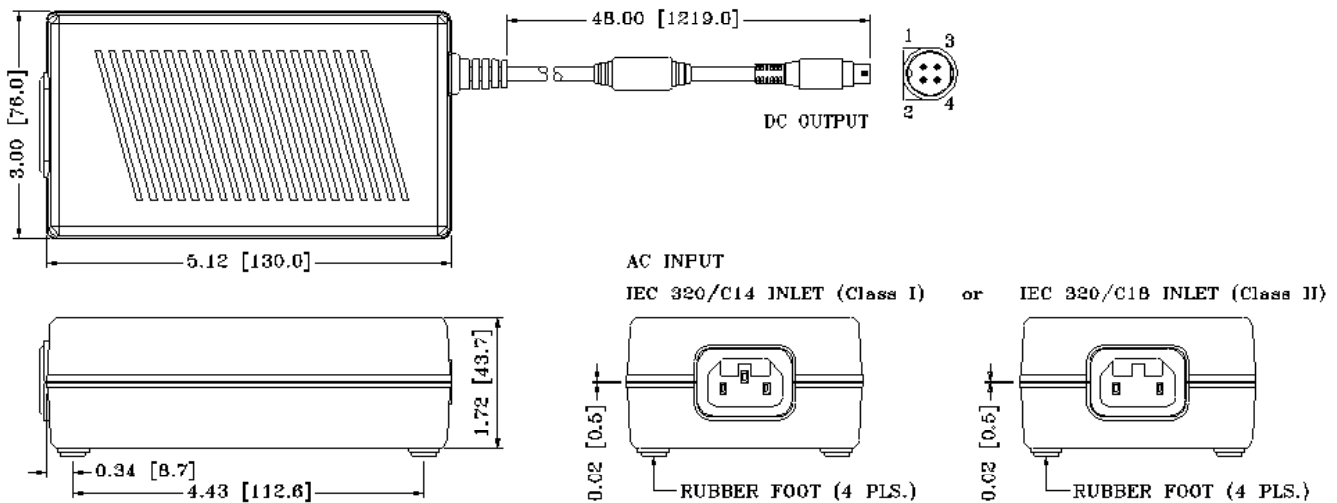
Switching frequency :	50 KHz - 110 KHz
Power factor :	0.98 Typical
Efficiency :	85% min. (78% min. for TMP90-05, TMP90-06, TMP90-09 and TMP90-12)
Hold-up time :	15 msec minimum at 110VAC
Line regulation :	$\pm 0.5\%$ maximum at full load
Inrush current :	40 amps @ 115VAC or 60 amps @ 230VAC, @ 25 $^{\circ}C$ 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 $^{\circ}C$ ambient, calculated per MIL-HDBK-217F
<b>EMC Performance (IEC60601-1-2: 2001)</b>	
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 and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, $\pm 8KV$ air and $\pm 6KV$ contact
EN61000-4-3:	Radiated immunity, 3V/m
EN61000-4-4:	Fast transient/burst, $\pm 2KV$
EN61000-4-5:	Surge, $\pm 1KV$ diff, $\pm 2KV$ 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

## OUTPUT VOLTAGE/CURRENT RATING CHART

Product No.	Vnom.	Output			Tol.	Maximum Output Power
		Imin.	Imax.			
TMP90-05	5V	0A	12.0A		5%	60W
TMP90-06	6V	0A	10.0A		5%	60W
TMP90-09	9V	0A	7.78A		5%	70W
TMP90-12	12V	0A	6.67A		5%	80W
TMP90-13.5	13.5V	0A	6.3A		5%	85W
TMP90-15	15V	0A	5.67A		5%	85W
TMP90-18	18V	0A	5.0A		5%	90W
TMP90-19	19V	0A	4.74A		5%	90W
TMP90-24	24V	0A	3.75A		5%	90W
TMP90-30	30V	0A	3.0A		5%	90W
TMP90-48	48V	0A	1.87A		5%	90W

### NOTES:

- Ripple and noise: Peak-to-peak with 20MHz bandwidth and 10µF tantalum capacitor in parallel with a 0.1µF ceramic capacitor at rated line voltage and load ranges.
- To order a model with IEC320/C18 inlet with class II insulation, add suffix "C2", e.g. TMP90-12-C2.



### NOTES:

- Dimensions show in inch [mm]
- Tolerance 0.02 [0.5] maximum
- Weight: 658 grams approx.
- Standard output connector is a male 4-pin power DIN. Please contact TRUMPower for other connector options.
- TMP90-05 and TMP90-06 output connectors are without lock.

## PIN CHART

Product No.	PIN	1	2	3	4	Shell
		TMP90-05	TMP90-06	RETURN	OUTPUT +V	
TMP90-09	TMP90-12					
TMP90-13.5	TMP90-15					
TMP90-18	TMP90-19					
TMP90-24	TMP90-30					
TMP90-48						

Tumbler Technologies + TRUMPower

3350 Scott Blvd., Bldg. 13, Santa Clara, California 95054, USA

Phone: 408-988-6616 • Fax: 408-988-6622 • email: sales@trumpower.com • Website: www.TRUMPower.com