

### DESCRIPTION

The TMP150 is a series of medical grade, class I and class II, AC/DC desktop power adapters of 132 to 150 watts output power. They are enclosed in a 94V-1 rated case with an IEC 320/C14 or IEC 320/C18 AC 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.

### FEATURES

- Low safety ground leakage current
- Optional output connectors
- 100% burn-in
- 90 to 264VAC wide input range
- Overvoltage & overcurrent protections
- 0.98 PFC
- Compliant with CEC and Energy Star efficiency level IV requirements
- No load 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 :            | 2.0A (rms) for 115VAC<br>1.0A (rms) for 230VAC |
| Earth leakage current :    | 90 $\mu$ A max. @ 115VAC, 60Hz                 |
| (Class I)                  | 150 $\mu$ A max. @ 230VAC, 50Hz                |
| Enclosure leakage current: | 90 $\mu$ A max. @ 264VAC, 50Hz                 |
| (Class II)                 |                                                |

### OUTPUT SPECIFICATIONS

|                           |                                                                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Output voltage/current :  | See rating chart                                                                                                                 |
| Total output power :      | See rating chart                                                                                                                 |
| Ripple and noise :        | 2% peak to peak maximum                                                                                                          |
| Overvoltage protection :  | Set at 112 – 140% of its nominal output voltage                                                                                  |
| Overcurrent protection :  | All outputs protected to short circuit conditions                                                                                |
| Temperature coefficient : | All outputs $\pm 0.04\%/^{\circ}\text{C}$ 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 $^{\circ}\text{C}$ to +60 $^{\circ}\text{C}$                                       |
| Storage temperature :   | -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$                                     |
| Relative humidity :     | 5% to 95% non-condensing                                                             |
| Derating :              | Derate from 100% at +40 $^{\circ}\text{C}$ linearly to 50% at +60 $^{\circ}\text{C}$ |

### TMP150 SERIES Class I, Class II



RoHS



### Safety Standard Approvals :



UL 60601-1  
CSA C22.2 No. 601.1



TÜV EN60601-1

### GENERAL SPECIFICATIONS

|                       |                                                                                                      |
|-----------------------|------------------------------------------------------------------------------------------------------|
| Switching frequency : | 30KHz ~ 110KHz                                                                                       |
| Power factor :        | 0.98 typical at 115VAC                                                                               |
| Efficiency :          | 85% min.                                                                                             |
| Hold-up time :        | 15 msec minimum at 110VAC                                                                            |
| Line regulation :     | $\pm 0.5\%$ maximum at full load                                                                     |
| Inrush current :      | 60 amps @ 115VAC or 100 amps @ 230VAC, at 25 $^{\circ}\text{C}$ cold start                           |
| Withstand voltage :   | 4000VAC from input to output<br>1500VAC from input to ground<br>500VAC from output to ground         |
| MTBF :                | 150,000 hours minimum at full load<br>At 25 $^{\circ}\text{C}$ ambient, calculated per MIL-HDBK-217F |

### EMC Performance

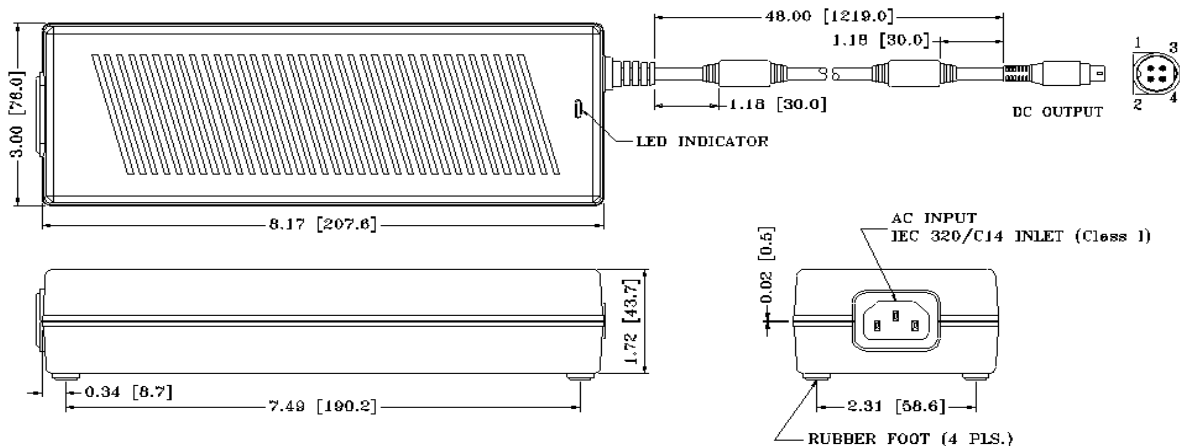
|               |                                                                                            |
|---------------|--------------------------------------------------------------------------------------------|
| EN55011:      | Class B conducted, Class B radiated                                                        |
| FCC:          | Class B conducted, Class B radiated                                                        |
| VCCI:         | Class B conducted, Class B radiated                                                        |
| EN61000-3-2:  | Harmonic distortion, Class D                                                               |
| EN61000-3-3:  | Line flicker                                                                               |
| EN61000-4-2:  | ESD, $\pm 8\text{KV}$ air and $\pm 6\text{KV}$ contact                                     |
| EN61000-4-3:  | Radiated immunity, 3V/m                                                                    |
| EN61000-4-4:  | Fast transient/burst, $\pm 2\text{KV}$                                                     |
| EN61000-4-5:  | Surge, $\pm 1\text{KV}$ diff, $\pm 2\text{KV}$ 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

| <u>Product No.</u> | <u>Output</u> |              |              |  | <u>Tol.</u> | <u>Maximum Output Power</u> |
|--------------------|---------------|--------------|--------------|--|-------------|-----------------------------|
|                    | <u>Vnom.</u>  | <u>Imin.</u> | <u>Imax.</u> |  |             |                             |
| TMP150-12          | 12.0V         | 0A           | 11.0A        |  | 5%          | 132W                        |
| TMP150-15          | 15.0V         | 0A           | 9.0A         |  | 5%          | 135W                        |
| TMP150-19          | 19.0V         | 0A           | 7.90A        |  | 5%          | 150W                        |
| TMP150-24          | 24.0V         | 0A           | 6.25A        |  | 5%          | 150W                        |
| TMP150-27          | 27.0V         | 0A           | 5.56A        |  | 5%          | 150W                        |
| TMP150-48          | 48.0V         | 0A           | 3.13A        |  | 5%          | 150W                        |

NOTES: 1. 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.  
2. To order a "Class II" model with IEC320/C18 inlet, add suffix "C2", e.g. TMP150-24-C2.

## MECHANICAL SPECIFICATIONS



\*Add suffix "C2" when ordering "Class II" units with IEC 320/C18 inlet.

### NOTES:

1. Dimensions show in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 960 grams approx.
4. Standard output connector is a male 4-pin power DIN. Please consult TRUMPower for other connector options.
5. TMP150-12, -15, -19 output connectors are without lock. TMP150-24, -27, -48 output connectors are with lock.

## PIN CHART

| <u>Product No.</u> / <u>PIN</u> |           | <u>1</u> | <u>2</u>  | <u>3</u> | <u>4</u>  | <u>Shell</u> |
|---------------------------------|-----------|----------|-----------|----------|-----------|--------------|
| TMP150-12                       | TMP150-15 | Return   | Output +V | Return   | Output +V | AC Ground    |
| TMP150-19                       | TMP150-24 |          |           |          |           |              |
| TMP150-27                       | TMP150-48 |          |           |          |           |              |