TMA400 Series
400 Watts Medical & ITE Power Adapters

FEATURES

- Fanless, Convection Cooled
- Suitable for BF Rated Applications
- 480W/520W Peak Power Capability for 3 Seconds
- Operation Altitude Up to 5,000 Meters
- Touch Current Less than 100 µA
- ITE 62368-1 and Medical 60601-1 Approvals

INPUT SPECIFICATIONS

- Input Voltage Range: 90~264 VAC
- Input Frequency: 47~63 Hz
- Input Current: 4.2A rms @ 115 VAC, 2.1A rms @ 230 VAC
- Inrush Current: 35A max. @ 115 VAC or 70A max. @ 230 VAC, at 25°C cold start
- Earth Leakage Current: 200 µA max. @ 264 VAC
- Touch Current: 100 µA max. @ 264 VAC

OUTPUT SPECIFICATIONS

- Output Power Ratings: See table
- No Load Input Power: <0.5W max.
- Output Regulation: ±5%
- Ripple & Noise: 1% peak to peak max. at full load
- Short Circuit Protection: Auto-recovery
- Over Voltage Protection: Auto-recovery
- Over Load Protection: Auto-recovery
- Over Temperature Protection: Auto-recovery
- Temperature Coefficient: ±0.04%/°C max.
- Maximum Output Power (Po): 380/400W convection cooling

MODELS LIST

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TMA400-12</td>
<td>12V</td>
<td>31.66A</td>
<td>480W 520W</td>
<td>120mV ±5%</td>
<td></td>
<td>380W</td>
</tr>
<tr>
<td>TMA400-19</td>
<td>19V</td>
<td>21.06A</td>
<td></td>
<td>190mV ±5%</td>
<td></td>
<td>400W</td>
</tr>
<tr>
<td>TMA400-24</td>
<td>24V</td>
<td>16.66A</td>
<td>480W 520W</td>
<td>240mV ±5%</td>
<td></td>
<td>400W</td>
</tr>
<tr>
<td>TMA400-28</td>
<td>28V</td>
<td>14.28A</td>
<td>480W 520W</td>
<td>300mV ±5%</td>
<td></td>
<td>400W</td>
</tr>
<tr>
<td>TMA400-48</td>
<td>48V</td>
<td>8.33A</td>
<td></td>
<td>300mV ±5%</td>
<td></td>
<td>400W</td>
</tr>
</tbody>
</table>

GENERAL SPECIFICATIONS

- Power Factor: >0.95 @ 115 VAC, >0.90 @ 230 VAC, full load
- Efficiency: 87.5% min. @ 115 VAC/230 VAC, 92% min. @ 80% full load, 230 VAC
- Hold-up Time: >10ms typ. @ full load, 115 VAC
- Switching Frequency: 54~75 kHz @ full load
- Line Regulation: ±0.5% max. @ full load
- Operating Temperature: -20°C to +60°C
- Operating Humidity: 10% to 95% non-condensing
- Storage Temperature: -20°C to +85°C
- Storage Humidity: 0% to 95% non-condensing
- Derating: Derate from 100% at +40°C linearly to 50% at +60°C
- Withstand Voltage: 4,000 VAC from input to output (2MOPP), 1,500 VAC from input to ground, (1MOPP), 1,500 VAC from output to ground, (1MOPP)
- Operating Altitude: 5,000 meters max.
- MTBF: 230K hours minimum at full load, 25°C ambient, calculated per Bellcore TR-332

STANDARDS & COMPLIANCES

- IEC/EN 60601-1-2 Ed. 4: EMC & Immunity Performance
- EN 55011, FCC, VCCI: Class B, conducted & radiated
- EN 61000-3-2: Harmonic distortion, Class A & D
- EN 61000-3-3: Line fluctuations & flicker
- EN 61000-4-2: ESD, ±15 KV air and ±8 KV contact
- EN 61000-4-3: Radiated immunity, 10 V/m
- EN 61000-4-4: Fast transient/burst, ±2 KV
- EN 61000-4-5: Surge, ±1 KV diff., ±2 KV com.
- EN 61000-4-6: Conducted immunity, 10 Vrms
- EN 61000-4-8: Magnetic field immunity, 30 A/m
- EN 61000-4-11: Voltage dip immunity, 30% reduction for 500ms, 60% reduction for 100ms, >95% reduction for 10ms
- Safety Standards: UL/IEC/EN 60601-1 (Ed. 3.1), ANSI/AAMI ES 60601-1 (Ed. 3.1), CSA C22.2 No. 60601-1 (Ed. 3.1), UL/IEC/EN 62368-1 (3rd Ed.), CSA C22.2 No. 62368-1 (3rd Ed.)
- Agency Approvals: UL, cUL, TUV, CE, CB, FCC
- Other Compliances: RoHS, DOE Level VI
### MECHANICAL SPECIFICATIONS

#### DC OUTPUT CONNECTOR

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RETURN</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>AC GND</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>+V</td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>N.C.</td>
</tr>
</tbody>
</table>

#### Notes:

1. Unit: mm
2. Tolerance: ±1.5mm
3. Standard output connector: Molex Mini-Fit 10 PIN connector, 4.2mm pitch or equivalent.
5. Standard Output Cable: 8C+1, UL2464, 16AWG, VW-1, 80°C, 300V.
6. Weight: 2.85 kgs (6.28 lbs) approx.
7. Standard models come with AC Ground and DC Return separated. Connected grounds available upon request.
8. Contact TRUMPower for output connector options.