

DESCRIPTION

The TMP110 series of AC/DC switching power adapters are for 110 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC 320 inlet to mate with interchangeable cord for world-wide use. An on/off switch can be added at request. All models meet CISPR 11 and FCC class B emission limits, and are designed for medical applications.

FEATURES

- Dual, triple or quadruple outputs
- Optional output connectors
- Optional on/off switch
- Optional Power Fail Detect (PFD) signal
- 100% burn-in
- Wide input range 85 to 264 VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection

INPUT SPECIFICATIONS

Input voltage : 85 to 264 VAC
Input frequency : 47 to 63 Hz
Input current : 3.20A (rms) for 115 VAC
1.80A (rms) for 230VAC
Leakage current : 90µA max. @ 115VAC, 60Hz
150µA max. @ 230VAC, 50Hz

OUTPUT SPECIFICATIONS

Output voltage/current : See rating chart
Total output power : 110 watts maximum
Ripple and noise : 1% peak to peak maximum
Overvoltage protection : Provided on output #1 only; set at 112-132% 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 500us after a 25% step load change
PFD signal (optional): TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to +5V output dropping 5% below its nominal value. This signal also provides a minimum delay of 100ms after +5V is within regulation.

TMP110 SERIES



Safety Standard Approvals :



UL 2601-1
CSA C22.2 No. 601.1



TÜV EN60601-1

ENVIRONMENTAL SPECIFICATIONS

Operating temperature : 0°C to +70°C
Storage temperature : -40°C to +85°C
Relative humidity : 5% to 95% non-condensing
Derating : Derate from 100% at +50°C linearly to 50% at +70°C

GENERAL SPECIFICATIONS

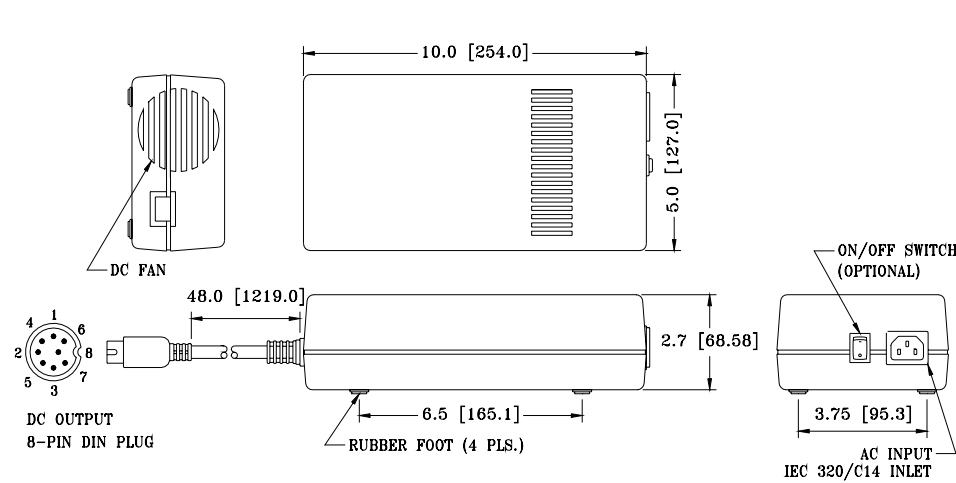
Switching frequency : 20KHz to 250KHz, varies with load and line
Efficiency : 70% minimum on single output models with $V_o \geq 12V$, 65% minimum on the others
Hold-up time : 12 msec minimum at 110VAC
Line regulation : $\pm 0.5\%$ maximum at full load
Inrush current : 15 amps @ 115VAC, or 30 amps @ 230VAC, at 25°C cold start
Withstand voltage : 4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF : 550,000 hours minimum at full load at 25°C ambient, calculated per MIL-HDBK-217F, excluding DC fan.
EMC Performance (EN60601-1-2: 2001)
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, $\pm 8KV$ air and $\pm 6KV$ contact
EN61000-4-3: Radiated immunity, 3V/m for 80~2500MHz
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. | Output #1 | | | | Output #2 (1) | | | | | Output #3 | | | | Output #4 | | | | Output Power |
|--------------|-----------|-------|-------|------|---------------|-------|-------|-------|-----|-----------|-------|-------|-----|-----------|-------|-------|------|--------------|
| | Vnom. | Imin. | Imax. | Tol. | Vnom. | Imin. | Imax. | Ipeak | Tol | Vnom. | Imin. | Imax. | Tol | Vnom. | Imin. | Imax. | Tol. | |
| TMP110-D23 | +5V | 0.8A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | (N/A) | | | | (N/A) | | | | 110W |
| TMP110-T31 | +5V | 0.8A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | -12V | 0A | 2A | 5% | (N/A) | | | | 110W |
| TMP110-T32 | +5V | 0.8A | 10A | 5% | +15V | 0A | 4A | 7.5A | 5% | -15V | 0A | 2A | 5% | (N/A) | | | | 110W |
| TMP110-Q40 | +5V | 0.8A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | -12V | 0A | 2A | 5% | -5V | 0A | 2A | 5% | 110W |
| TMP110-Q41 | +5V | 0.8A | 10A | 5% | +15V | 0A | 4A | 7.5A | 5% | -15V | 0A | 2A | 5% | +24V | 0A | 2A | 5% | 110W |
| TMP110-Q42 | +5V | 0.8A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | -12V | 0A | 2A | 5% | +12V | 0A | 2A | 5% | 110W |
| TMP110-Q45 | +5V | 0.8A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | -12V | 0A | 2A | 5% | +24V | 0A | 2A | 5% | 110W |
| TMP110-Q45-1 | +5V | 2.0A | 10A | 5% | +12V | 0A | 5A | 9.0A | 5% | -12V | 0A | 2A | 5% | +24V | 1.5A | 3A | 10% | 110W |
| TMP110-Q45-2 | +5V | 0.8A | 10A | 5% | +24V | 0A | 3A | 5.0A | 5% | -12V | 0A | 2A | 5% | +12V | 0A | 2A | 5% | 110W |
| TMP110-Q46 | +5V | 0.8A | 10A | 5% | +15V | 0A | 4A | 7.5A | 5% | -15V | 0A | 2A | 5% | -5V | 0A | 2A | 5% | 110W |

- Notes:
- (1) Peak output current with 10% maximum duty cycle for less than 60 seconds. Total peak power must not exceed 130 watts.
 - (2) The output #1 of model TMP110-Q45-1 needs a minimum current of 2A to support the other outputs at their maximum rated loads.

MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 1.40 Kgs (3.08 Lbs.) approx.
4. Standard output connector is an 8-pin at 270° male DIN plug. For other output connector options, please consult factory.
5. To order a model with on/off switch, add suffix "S" to the product number. e.g. TMP110-T31-S.
6. To order a model with PFD signal, add suffix "PF" to the product number, e.g. TMP110-T31-PF.

PIN CHART

| Product No. | PIN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------|--------------|---------------|-----------|------------|-----------|-------------|---------------|-----------|--------------|
| TMP110-D23 | | COMMON RETURN | N.C. | OUTPUT #1. | N.C. | OUTPUT #2. | COMMON RETURN | OUTPUT #1 | N.C. or PFD |
| TMP110-T31 | TMP110-T32 | COMMON RETURN | OUTPUT #3 | OUTPUT #1. | N.C | OUTPUT #2. | COMMON RETURN | OUTPUT #1 | N.C. or PFD |
| TMP110-Q40 | TMP110-Q41 | COMMON RETURN | OUTPUT #3 | OUTPUT #1. | OUTPUT #4 | OUTPUT #2.. | COMMON RETURN | OUTPUT #1 | N.C. or PFD. |
| TMP110-Q42 | TMP110-Q45 | | | | | | | | |
| TMP110-Q45-1 | TMP110-Q45-2 | | | | | | | | |
| TMP110-Q46 | | | | | | | | | |