

Input Specifications

Input voltage	– nominal – AC range (universal input) – DC range	100 – 240 VAC 85 – 264 VAC 120 – 370 VDC
Input frequency	– nominal – range	50 / 60 Hz 4 – 30 W models: 47 – 440 Hz 60 W models: 47 – 63 Hz
Input current at full load	– 115 VAC / 230 VAC input	4 W models: 80 mA / 55 mA typ. 7 W models: 150 mA / 100 mA typ. 10 W models: 200 mA / 130 mA typ. 15 W models: 300 mA / 190 mA typ. 30 W models: 550 mA / 330 mA typ. 60 W models: 1050 mA / 670 mA typ.
Recommended external input fuse		4 W models: 1.0 A slow blow 7 – 15 W models: 2.0 A slow blow 30 W models: 3.5 A slow blow 60 W models: 6.3 A slow blow

Output Specifications

Voltage set accuracy		±2 % max.
Regulation	– Input variation Output 1 – Input variation Output 2/3 – Load variation TPM 04103 model (0–100%): - single and floating outputs (10–100%): - common ground outputs balanced load (10–100%): - common ground outputs unbalanced load (20/90%):	1 % max. 3 % max. 1.5 % max. 1 % max. (0–100% for TPM 04 models) 2.5 % max. 5.0 % max.
Minimum load	TPM 04 single and sym.dual models: TPM 04 asym. dual models: single and dual output models: triple output models main output: triple output models auxiliary outputs:	not required 25% per output 10 % of rated max. current 10 % of rated max. current 20 % of rated max. current operation at lower load condition will not damage these power supplies, however, they may not meet all listed specifications.
Ripple and noise (20MHz bandwidth)	3.3 VDC & 5.0 VDC outputs: other outputs:	1.8 % of Vout [mVp-p] 1.0 % of Vout [mVp-p]
Overload protection by current limit		105 % min. of Inom, fold back, automatic recovery (long term overload condition may cause damage to the power supply)
Overvoltage protection by Zener diode (main output only)		120 % of Vout typ.
Start-up time		400 ms typ.
Hold-up time		20 ms typ.

Max. capacitive load [µF]		Model series						
	Output:	TPM 04	TPM 07	TPM 10	TPM 10	TPM 15	TPM 30	TPM 60
Single output models:	3.3 VDC	1200	2200	2200	3900	-	-	-
	5.0 / 5.1 VDC	800	2200	2200	3300	3900	8000	8000
	9.0 VDC	440	-	-	-	-	-	-
	12 / 15 VDC	260	1000	1000	2200	2200	3900	3900
	24 VDC	160	680	680	1000	1000	1500	1500
	36 VDC	-	-	-	-	-	-	1000
	48 VDC	-	-	-	-	680	1000	800
Dual output models:	3.3 / 5.0 VDC	4700	-	-	-	2000	3900	-
	+12 / -12 / +15 / -15 VDC	260	-	-	1000	1500	1500	-
Triple output models:	3.3 / 5.0 VDC	-	-	-	-	2200	2200	-
	+12 / -12 / +15 / -15 VDC	-	-	-	-	1500	1500	-

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

General Specifications

Temperature ranges	– Operating	TMPM 04 models: –25°C to +60°C (no derating) TMP 10 models: –25°C to +50°C (no derating) other models: –25°C to +70°C (with derating) –40°C to +85°C
	– Storage (non-operating)	
Power derating		3.3 %/K above +50°C to +65°C 5.0 %/K above +65°C to +70°C (no derating approved for TMPM04 and TMP10 models)
Over temperature protection		at 90°C (automatic recovery at 67°C)
Temperature coefficient		0.02 %/K
Humidity (non-condensing)		95 % rel. H max.
Switching frequency		100 kHz typ. fixed
Isolation voltage (60 sec.)	– Input/Output	3'000 VAC
Isolation resistance	– Input/Output	100 MOhm (at 500 VDC)
Altitude during operation	TMP 10, TMPM 04 & 10, : other models:	2'000 m max. (6'560 ft) approved 3'000 m max. (9'840 ft) approved
Electromagnetic compatibility (EMC), Emissions		EN 61000-6-3: 2007 EN 61204-3: 2000, class A EN 55011, EN 55032, FCC part 15: class B
Electromagnetic compatibility (EMC), Immunity	– Electrostatic discharge ESD – RF field susceptibility – Electrical fast transient / burst immunity input – Electrical fast transient / burst immunity output – Surge immunity line – neutral – Surge immunity output – Immunity to conducted RF disturbances – Mains voltage dips and interruptions	EN 61000-6-2: 2005 EN 61204-3: 2000, class A EN 61000-4-2 8 kV / 4 kV, criteria B EN 61000-4-3 10 V/m, criteria A EN 61000-4-4 ±2 kV, criteria B EN 61000-4-4 ±2 kV, criteria B EN 61000-4-5, ±1 kV, criteria B EN 61000-4-5 ±0.5 kV, criteria B EN 61000-4-6 10 V, criteria B EN 61000-4-6 30 % 10 ms, criteria B EN 61000-4-11 60 % 100 ms, criteria C 95 % 5000 ms, criteria C
EMC test certificates		www.tracopower.com/overview/tmp
Protection class II		to IEC/EN 60536
Safety standards	– Information technology equipment – Industrial control equipment	IEC/EN 60950-1, UL 60950-1 UL/cUL 508 (chassis mount single and symmetric dual output models only)
Safety approvals	– CB certificate for IEC 60950-1 – UL approvals for UL 60950-1 – UL approval for UL 508 (chassis mount models only)	www.tracopower.com/overview/tmp www.ul.com -> certifications -> File: e188913 www.ul.com -> certifications -> File: e322109
Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	TMP 07, TMPM 04 & 10 models: TMP 10 models: TMP 15 models: TMP 30 models: TMP 60 models:	>330'000 h >300'000 h >280'000 h >250'000 h >125'000 h
Casing material		plastic resin + fiberglass (UL 94V-0 rated)
Environmental compliance	– Reach – RoHS	www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU

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