Input Specifications

Input voltage	– nominal		100 – 240 VAC
	– AC range (universal input)		85 – 264 VAC
	– DC range		120 – 370 VDC
Input frequency	– nominal		50 / 60 Hz
	– range	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		1 % max.
	– Input variation Output 2/3		3 % max.
	– Load variation	TMPM 04103 model (0–100%):	1.5 % max.
		single and floating outputs (10–100%):	1 % max. (0–100% for TMPM 04 models)
		common ground outputs balanced load (10–100%):	2.5 % max.
		common ground outputs unbalanced load (20/90%):	5.0 % max.
Minimum load		TMPM 04 single and sym.dual models:	not required
		TMPM 04 asym. dual models:	25% per output
		single and dual output models:	10 % of rated max. current
		triple output models main output:	10 % of rated max. current
		triple output models auxiliary outputs:	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:	1.8 % of Vout [mVp-p]
		other outputs:	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:	TMPM 04	TMP 07	TMPM 10	TMP 10	TMP 15	TMP 30	TMP 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)
	– Storage (non-operating)		–40°C to +85°C
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, :	2'000 m max. (6'560 ft) approved
		other models:	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			EN 61000-6-2: 2005 EN 61204-3: 2000, class A
	– Electrostatic discharge ESD		EN 61000-4-2 8 kV / 4 kV, criteria B
	– RF field susceptibility		EN 61000-4-3 10 V/m, criteria A
	– Electrical fast transient / burst immunity input		EN 61000-4-4 ±2 kV, criteria B
	– Electrical fast transient / burst immunity output		EN 61000-4-4 ±2 kV, criteria B
	– Surge immunity line – neutral		EN 61000-4-5, ±1 kV, criteria B
	– Surge immunity output		EN 61000-4-5 ±0.5 kV, criteria B
	– Immunity to conducted RF disturbances		EN 61000-4-6 10 V, criteria B
	– Mains voltage dips and interruptions		EN 61000-4-11 30 % 10 ms, criteria B 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 symetric dual output models only)
Safety approvals	– CB certificate for IEC 60950-1		www.tracopower.com/overview/tmp
	– UL approvals for UL 60950-1		www.ul.com -> certifications -> File: e188913
	– UL approval for UL 508 (chassis mount models only)		www.ul.com -> certifications -> File: e322109
Reliability /calculated MTBF		TMP 07, TMPM 04 & 10 models:	>330'000 h
(MIL-HDBK-217F, at +25°C, ground benign)		TMP 10 models:	>300'000 h
		TMP 15 models:	>280'000 h
		TMP 30 models:	>250'000 h
		TMP 60 models:	>125'000 h
Casing material			plastic resin + fiberglass (UL 94V-0 rated)
Environmental compliance	– Reach		www.tracopower.com/products/reach-declaration.pdf
	– RoHS		RoHS directive 2011/65/EU

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