

General Specifications

Operating temperature		-40°C to +85°C see thermal considerations for power derating
Storage temperature		-40°C to +85°C
Over temperature protection		Applies at 110 – 125°C (latch out) Standby power source is always present
Humidity (non condensing)		5 – 95 % rel. H
Altitude during operation		5000 m max.
Switching frequency	– at 230 VAC	15 VDC models: 75 kHz typ. (pulse frequency modulation) other output models: 65 kHz typ. (pulse frequency modulation)
Isolation voltage	– Input to output (60 s) (2 × MOPP insulation) – Input/output to field ground (60 s)	4000 VAC 2500 VAC
Isolation resistance	– at 500 VDC	100 MOhm min.
Reliability	– calculated MTBF at +25°C acc. to MIL-HDBK-217F	400'000 h
Protection class *		class I
EMC emissions *	– conducted input emission – radiated emission – Medical devices emission limits – Harmonic current emissions – Voltage flicker	EN 55032, class B EN 55032, class A IEC 60601-1-2 ed.4 IEC / EN 61000-3-2, class A and D IEC / EN 61000-3-3
EMC immunity	– Electrostatic discharge (ESD) – RF field immunity – Electrical fast transients/burst immunity – Surge – Conducted RF – Magnetic field (only for single output models) – Voltage dips and interruptions	EN 60601-1-2 ed.4, EN 55024, IEC 61000-6-2 EN 61000-4-2, ±15 kV air, ±8 kV contact perf. criteria A EN 61000-4-3, 3 V/m perf. criteria A EN 61000-4-4, ±2 kV perf. criteria A EN 61000-4-5, ±1 kV line to line, ±2kV line to ground, perf. criteria A EN 61000-4-6, 20 Vrms perf. criteria A EN 61000-4-8, 30 A/m perf. criteria A EN 61000-4-11
Voltage dip and interruptions according EN 60601-1-2	– at 100 VAC / 50 Hz – at 230 VAC / 50 Hz	100%, 20 ms perf. criteria A 30%, 500 ms perf. criteria B 100%, 5000 ms perf. criteria B 100%, 10 ms perf. criteria A 100%, 20 ms perf. criteria B 30%, 500 ms perf. criteria A 100%, 5000 ms perf. criteria B
Safety standards	– Medical equipment – IT and multimedia equipment – Certification documents	IEC/EN 60601-1 3rd edition, ANSI/AAMI ES 60601-1:2005(R)2012 UL 62368-1 www.tracopower.com/overview/tpp450a

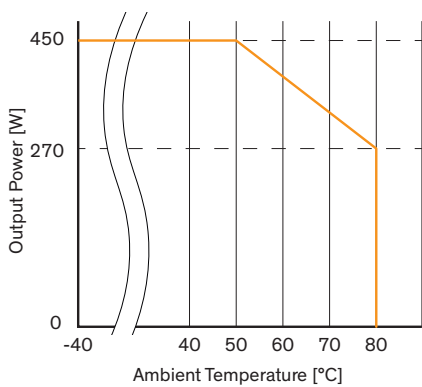
* For optimal EMI performance the power supply should be mounted to a grounded aluminium plate (480×248×12 mm) with electrical contact to the four PCB mounting holes. To comply with safety standards, this plate must be grounded to PE.

General Specifications

Environment	<ul style="list-style-type: none"> - Vibration - Shock - Thermal shock 	acc. IEC 60068-2-6 acc. IEC 60068-2-27 acc. MIL-STD-810F
Environmental compliance	<ul style="list-style-type: none"> - Reach - RoHS 	www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU
Connection		Pin terminal
Remote control	<ul style="list-style-type: none"> - On - Off (Standby power source is always present) - Input current of Remote-pins 	Open or 3 to 12 VDC Short or 0 to 1.2 VDC Applied between +Remote and -Remote pin -0.5 to 1.0 mA max.
PG - Power good signal	<ul style="list-style-type: none"> - Power good - Power off - PG-pin maximum ratings 	Open collector type Low level (indicated by PG-pin) High resistance (indicated by PG-pin) 50 VDC max. / 50 mA max. / 120 mW max.

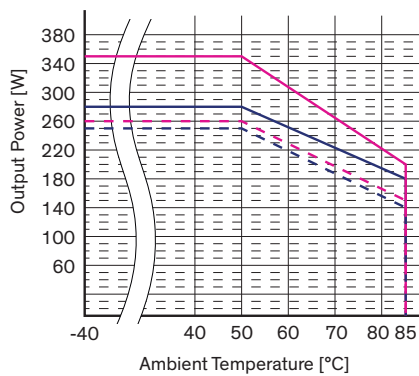
Thermal Considerations

Forced air cooling of 21 CFM (external fan)



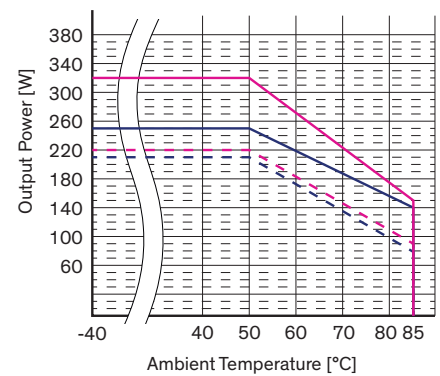
— all models at input voltage 115 or 230 VAC

Mounted to a thermal conducting metal plate or chassis (480x248x12 mm)



— 12 & 15 VDC models at input voltage 230 VAC
 - - - 12 & 15 VDC models at input voltage 115 VAC

Natural convection



— other output models at input voltage 230 VAC
 - - - other output models at input voltage 115 VAC

The units are optionally available with casing and internal fan to meet the considerations for forced air cooling (see TPP 450 Series).

The thermal considerations refer to the test setup (horizontal mounting) for certification.

Temperature reference positions for to determine the effective temperature limits in the application will be advised.

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