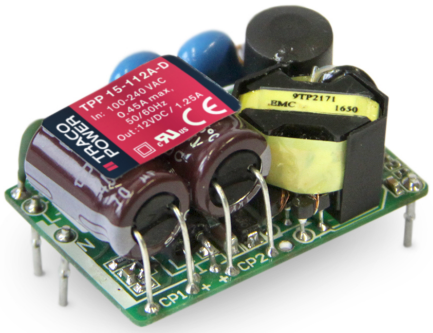
TRACO POWER

AC/DC Medical Power Supply

TPP 15A-D Series, 15 Watt

- **High power density power supply (open frame)**
- **Certification according to IEC/EN/ES 60601-1 3rd edition for 2 x MOPP**
- **Low leakage current <75 µA rated for BF applications**
- **EMC compliance to IEC 60601-1-2 4th edition**
- **Risk management process according to ISO 14971 incl. risk management file**
- **Acceptance criteria for electronic assemblies acc. to IPC-A-610 Level 3**
- **Protection class II**
- **Operating up to 5000 m altitude**
- **Ready to meet ErP directive, no load power consumption <75 mW**
- **5 year product warranty**



ES 60601-1 IEC 60601-1
UL 62368-1 IEC 62368-1

The TPP 15A-D AC/DC power supplies feature a reinforced double I/O isolation system according to medical safety standards IEC/EN/ES 60601-1 3rd edition for 2 x MOPP approved for an operating altitude of 5000 m. The earth leakage current is below 75 µA what makes the units suitable for BF (body floating) applications. The excellent efficiency of up to 88.5% offers a high power density in the packaging format 1.0" x 1.5". The full load operating temperature range covers –40°C to +60°C while it goes up to 85°C with 50% load derating. The units operate in compliance to the medical EMC emission and immunity levels according to latest standard IEC 60601-1-2 4th edition.

Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPP 15-103A-D	13.2 W	3.3 VDC (2.97 - 3.63 VDC)	4'000 mA	84 %
TPP 15-105A-D	15 W	5 VDC (4.5 - 5.5 VDC)	3'000 mA	86 %
TPP 15-109A-D		9 VDC (8.1 - 9.9 VDC)	1'670 mA	86 %
TPP 15-112A-D		12 VDC (10.8 - 13.2 VDC)	1'250 mA	87 %
TPP 15-115A-D		15 VDC (13.5 - 16.5 VDC)	1'000 mA	87 %
TPP 15-124A-D		24 VDC (21.6 - 26.4 VDC)	625 mA	88 %
TPP 15-136A-D		36 VDC (32.4 - 39.6 VDC)	417 mA	88 %
TPP 15-148A-D		48 VDC (43.2 - 52.8 VDC)	313 mA	89 %

Note - Other output models are available on request.

Input Specifications

Input Voltage	- AC Range	85 - 264 VAC (Full Range)
	- DC Range	120 - 370 VDC (designed for, no certification)
Input Frequency		47 – 63 Hz
Input Current	- Full Load & Vin = 230 VAC	300 mA max.
	- Full Load & Vin = 115 VAC	450 mA max.
Power Consumption	- at no Load	75 mW max. (Ready to meet ErP directive)
Input Inrush Current	- at 230 VAC	40 A max.
Input Protection		T 1.6 A / 250 VAC (Internal Fuse in L & N)

Output Specifications

Output Voltage Adjustment			±10% (by external trim resistor) www.tracopower.com/overview/tpp15a-d
Voltage Set Accuracy			±1% max.
Regulation	- Input Variation (Vmin - Vmax)		0.2% max.
	- Load Variation (0 - 100%)		0.5% max. 0.7% max. (3.3 and 5 VDC model)
Ripple and Noise (20 MHz Bandwidth)		3.3 VDC model:	40 mVp-p typ. (with 10 µF X5R)
		5 VDC model:	40 mVp-p typ. (with 10 µF X5R)
		9 VDC model:	70 mVp-p typ. (with 10 µF X5R)
		12 VDC model:	70 mVp-p typ. (with 10 µF X5R)
		15 VDC model:	70 mVp-p typ. (with 10 µF X5R)
		24 VDC model:	100 mVp-p typ. (with 10 µF X5R)
		36 VDC model:	100 mVp-p typ. (with 10 µF X5R)
		48 VDC model:	140 mVp-p typ. (with 1 µF X7R)
Capacitive Load		3.3 VDC model:	6'000 µF max.
		5 VDC model:	4'000 µF max.
		9 VDC model:	1'860 µF max.
		12 VDC model:	1'200 µF max.
		15 VDC model:	820 µF max.
		24 VDC model:	470 µF max.
		36 VDC model:	220 µF max.
		48 VDC model:	150 µF max.
Minimum Load			not required
Temperature Coefficient			±0.02 %/K
Hold-up Time	- at 115 VAC		8 ms min.
Start-up Time	- at 230 VAC		500 ms max.
Output Current Limitation			120 - 200% of Iout max.
Short Circuit Protection			Continuous, automatic recovery
Overvoltage Protection			125 - 140% of Vout nom.
Transient Response	- Response Deviation		8% max. (75% to 100% Load Step)
	- Response Time		500 µs typ. (75% to 100% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Medical Equipment	EN 60601-1 IEC 60601-1 ANSI/AAMI ES 60601-1 2 x MOPP (Means Of Patient Protection)
	- Certification Documents	www.tracopower.com/overview/tpp15a-d
Protection Class		Class II Prepared: Reinforced Insulation
Pollution Degree		PD 2: Office or Laboratory Environments
Over Voltage Category		OVC II

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