TRACO POWER

AC/DC Industrial Power Supply

TPI 100A Series, 100 Watt

- **Highest power density 100 W open frame power supply in 2” x 3” package**
- **I/O reinforced isolation 3000 VAC**
- **Ready to meet ErP directive, < 0.3 W no load power consumption**
- **Highest efficiency 91% - 92% across 10% - 100% load range**
- **Active power factor correction > 95**
- **Protection class II prepared**
- **Operating up to 5000 m altitude**
- **Adjustable output voltage**
- **3-year product warranty**



UL 62368-1 IEC 62368-1

The TPI 100A Series of 100 Watt AC/DC power supplies features a 3000 VAC I/O reinforced isolation. Excellent efficiency of up to 92% allows a high power density for the standard 2.0” x 3.0” packaging format. The full load operating temperature range is –40°C to +50°C while it goes up to 80°C with load derating. The power supplies are designed to meet the ErP directive (< 0.3 W no load power consumption). They come with an active power factor correction and the EMC characteristic is dedicated for applications in industrial and domestic fields. High reliability is provided by use of industrial quality grade components and an excellent thermal management. It makes the products an ideal solution for any demanding industrial devices and space critical applications.

Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TPI 100-112A-J	100 W	12 VDC (10.8 - 13.2 VDC)	8'340 mA	91 %
TPI 100-115A-J		15 VDC (13.5 - 16.5 VDC)	6'670 mA	92 %
TPI 100-124A-J		24 VDC (21.6 - 26.4 VDC)	4'170 mA	92 %
TPI 100-128A-J		28 VDC (25.2 - 30.8 VDC)	3'580 mA	92 %
TPI 100-136A-J		36 VDC (32.4 - 39.6 VDC)	2'780 mA	91 %
TPI 100-148A-J		48 VDC (43.2 - 52.8 VDC)	2'090 mA	91 %

Input Specifications

Input Voltage	- AC Range	Operational Range:	85 - 264 VAC (Full Range)
		Rated Range:	100 - 240 VAC (Full Range)
	- DC Range	Operational Range:	120 - 370 VDC (Designed for, no certification)
		Polarity:	+DC: L / –DC: N
Input Frequency		Operational Range:	47 - 440 Hz
		Certified:	50/60 Hz
Power Consumption	- No load & Vin = 230 VAC		300 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC		300 mW max.
Input Current	- Full load & Vin = 230 VAC		550 mA max.
	- Full load & Vin = 115 VAC		1'150 mA max.
Input Inrush Current	- At 230 VAC		100 A max.
	- At 115 VAC		55 A max.
Power Factor	- At 230 VAC		0.95 min.
	- At 115 VAC		0.95 min.
Input Protection			T 3.15 A / 250 VAC (Internal Fuse in L & N)
Recommended Input Fuse			(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment			±10% (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy			±1% max.
Regulation	- Input Variation (Vmin - Vmax)		0.2% max.
	- Load Variation (0 - 100%)		0.5% max.
Ripple and Noise (20 MHz Bandwidth)		12 VDC model:	120 mVp-p typ. (w/ 10 µF X7R)
		15 VDC model:	150 mVp-p typ. (w/ 10 µF X7R)
		24 VDC model:	160 mVp-p typ. (w/ 1 µF X7R)
		28 VDC model:	180 mVp-p typ. (w/ 1 µF X7R)
		36 VDC model:	190 mVp-p typ. (w/ 1 µF X7R)
		48 VDC model:	340 mVp-p typ. (w/ 0.1 µF X7R)
Capacitive Load		12 VDC model:	6'950 µF max.
		15 VDC model:	4'450 µF max.
		24 VDC model:	1'750 µF max.
		28 VDC model:	1'280 µF max.
		36 VDC model:	770 µF max.
		48 VDC model:	430 µF max.
Minimum Load			Not required
Temperature Coefficient			±0.02 %/K max.
Hold-up Time	- At 230 VAC		22 ms min.
	- At 115 VAC		22 ms min.
Start-up Time	- At 230 VAC		1'000 ms max.
	- At 115 VAC		1'000 ms max.
Short Circuit Protection			Continuous, Automatic recovery
Output Current Limitation			115 - 150% of Iout max.
Overvoltage Protection			115 - 135% of Vout nom.
Transient Response	- Response Deviation		3% max. (50% to 75% Load Step)
	- Response Time		500 µs typ. (50% to 75% Load Step)

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

Safety Specifications

Standards	- IT / Multimedia Equipment		EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1
	- Certification Documents		www.tracopower.com/tpi100a-safety-cert
Protection Class			Class I & II (Prepared): Reinforced Insulation
		See application note:	www.tracopower.com/info/protection-class.pdf
Energy Source	- Output, acc. to 62368-1		ES1
Power Source	- Output, acc. to 62368-1		PS3
Pollution Degree			PD 2
Over Voltage Category			OVC II

EMC Specifications

EMI (Emissions)			EN 61000-6-4 (Generic Industrial)
	- Conducted Emissions		EN 55011 class A (internal filter) EN 55011 class B (internal filter) EN 55032 class A (internal filter) EN 55032 class B (internal filter) FCC 47 Part 15 class A (internal filter) FCC 47 Part 15 class B (internal filter)
	- Radiated Emissions		EN 55011 class A (internal filter) EN 55032 class A (internal filter) FCC 47 Part 15 class A (internal filter)
	- Harmonic Current Emissions		EN 61000-3-2, class A EN 61000-3-2, class D
	- Voltage Fluctuations & Flicker		EN 61000-3-3
EMS (Immunity)			EN 55024 (IT Equipment) EN 55035 (Multimedia)
	- Electrostatic Discharge	Air:	EN 61000-4-2, ±8 kV, perf. criteria A
		Contact:	EN 61000-4-2, ±6 kV, perf. criteria A
	- RF Electromagnetic Field		EN 61000-4-3, 20 V/m, perf. criteria A
	- EFT (Burst) / Surge		EN 61000-4-4, ±2 kV, perf. criteria A
		L to L:	EN 61000-4-5, ±1 kV, perf. criteria A
	- Conducted RF Disturbances		EN 61000-4-6, 20 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 10 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz:	EN 61000-4-11 30%, 25 periods, perf. criteria A >95%, 0.5 periods, perf. criteria A >95%, 250 periods, perf. criteria B
		115 VAC / 60 Hz:	EN 61000-4-11 30%, 25 periods, perf. criteria A >95%, 0.5 periods, perf. criteria A >95%, 250 periods, perf. criteria B
EMC / Environmental	- Certification Documents		www.tracopower.com/tpi100a-emc-cert

General Specifications

Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		–40°C to +80°C
	- Storage Temperature		–40°C to +85°C
			(-40°C startup: 80% load max. at Vin >100 VAC -40°C startup: 100% load max. at Vin >200 VAC)
Power Derating	- High Temperature		Depending on model
	- Low Input Voltage		1.33 %/V below 100 VAC
		See application note:	www.tracopower.com/tpi100a-cc

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

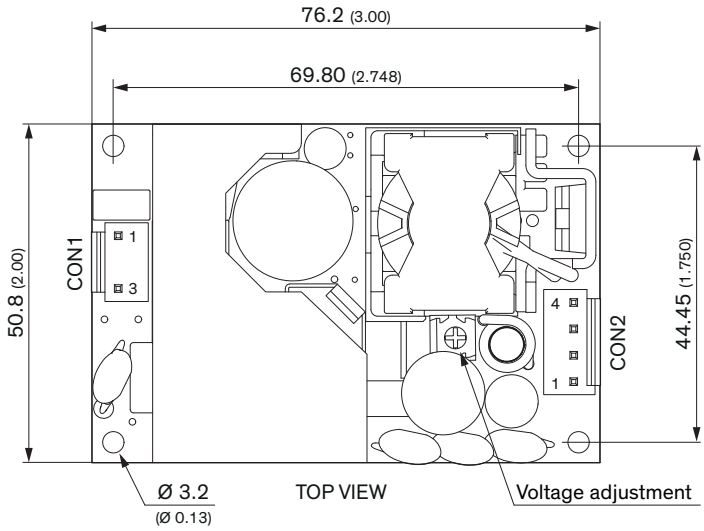
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max.
Regulator Topology		Flyback Converter
Switching Frequency		45 - 75 kHz (PWM QR)
Insulation System		Reinforced Insulation
Working Voltage (rated)		344 VAC
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
	- Input to Case or PE, 60 s	1'500 VAC
	- Output to Case or PE, 60 s	1'500 VAC
Isolation Resistance	- Input to Output, 500 VDC	100 MΩ min.
Leakage Current (at 264 VAC)	- Touch Current	300 µA max.
Reliability	- Calculated MTBF	790'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration	IEC 60068-2-6 1 g, 3 axis, sine sweep, 10-55 Hz, 1 oct/min
	- Mechanical Shock	IEC 60068-2-27 10 g, 3 axis, half sine, 11 ms 20 g, 3 axis, 3 shocks
Housing Type		Open Frame
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		156 g
Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a), 7(c)-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)
	- SCIP Reference Number	f11746f8-c399-40bd-b2b3-fcd7fddaaf3d

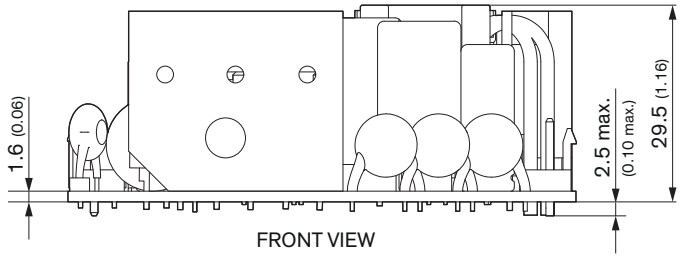
Additional Information

Supporting Documents	www.tracopower.com/overview/tpi100a
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

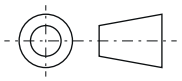
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Outline Dimensions





Dimension in mm (inch)
Tolerances: x.x ±0.50 (±0.02)
x.xx ±0.25 (±0.01)



Mounting screw locked torque: max. 5.0 kgfcm / 0.49 Nm

Pin connectors			
Input (CON1)		**Output** (CON2)	
Pin	**Function**	**Pin***	**Function**
1	Line	**1,2**	–Vout
3	Neutral	**3,4**	+Vout

*Terminal rated for 10 A max.
(at higher current connection has to be split)

CON1: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-4N

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