TRACO POWER

AC/DC Power Supply

TPI 125A-J Series, 125 Watt

- **125 Watt open frame power supplies in a 3" x 2" package**
- **Compact and cost efficient design**
- **Peak power function up to 120%**
- **I/O reinforced isolation 4000 VAC**
- **Operating temperature range –40°C to +85°C**
- **No load input power <0.3W (acc. ErP directive)**
- **High efficiency up to 92%**
- **Internal EN 55032 class B filter**
- **Protection class II prepared**
- **3-year product warranty**

prepared ErP ready c UL us CB Scheme

UL 62368-1 IEC 62368-1

The TPI 125A-J is a 125 Watt AC/DC open frame power supplies series with a 4000 VAC reinforced isolation system. Our TPI line specifically focuses on providing cost efficient industrial power supplies in compact designs. This series offers a peak power function which enables the unit to deliver up to 120% of the rated power for up to 10 seconds. Excellent efficiency of up to 92% allows a compact design and an operating temperature range (natural convection) of –40°C to +50°C without derating, while going up to +85°C with either load derating or forced cooling. They are designed to meet the ErP directive (< 0.3 W no load power consumption) and come with an EMC characteristics dedicated for applications in industrial/automation and test & measurement fields. High reliability is provided by use of industrial high-quality grade components and an excellent thermal management. It makes the TPI 125A-J an ideal solution for any demanding industrial devices or space critical applications.

Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max. (Forced air cooling)	Output Current max. (Natural convection)	Output Current peak	Efficiency typ.
TPI 125-112A-J	125 W	12 VDC (9.6 - 13.2 VDC)	10'420 mA	8'340 mA	12'500 mA	91 %
TPI 125-115A-J		15 VDC (12.0 - 16.5 VDC)	8'340 mA	6'670 mA	10'000 mA	92 %
TPI 125-124A-J		24 VDC (19.2 - 26.4 VDC)	5'210 mA	4'170 mA	6'250 mA	92 %
TPI 125-136A-J		36 VDC (28.8 - 39.6 VDC)	3'480 mA	2'780 mA	4'167 mA	91 %
TPI 125-148A-J		48 VDC (38.4 - 52.8 VDC)	2'610 mA	2'090 mA	3'125 mA	91 %

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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		700 mA max.
	- Full load & Vin = 115 VAC		1'800 mA max.
Input Inrush Current	- At 230 VAC		100 A max.
	- At 115 VAC		60 A max.
Power Factor	- At 230 VAC		0.95 min. (Active Power Factor Correction)
	- At 115 VAC		0.95 min. (Active Power Factor Correction)
Input Protection			T 3.15 A / 250 VAC (Internal Fuse in L)
Recommended Input Fuse			(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment			–20% to +10% (For trim-down lower than -10% a minimum load of 0.25 W is required) (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.
Boost Power			Output Current peak: See model table 150 W max. peak power (≥ 130 VAC input) 140 W max. peak power (< 130 VAC input) Peak power time: 10 s max. Peak power duty cycle: 20% max. Average operation power: 55% of full load (detailed description see application note)
Ripple and Noise (20 MHz Bandwidth)		12 VDC model:	140 mVp-p typ. (w/ 10 µF, 25 V, MLCC)
		15 VDC model:	150 mVp-p typ. (w/ 10 µF, 25 V, MLCC)
		24 VDC model:	160 mVp-p typ. (w/ 1 µF, 50 V, MLCC)
		36 VDC model:	190 mVp-p typ. (w/ 1 µF, 50 V, MLCC)
		48 VDC model:	340 mVp-p typ. (w/ 0.1 µF, 100 V, MLCC)
Capacitive Load		12 VDC model:	8'700 µF max.
		15 VDC model:	5'600 µF max.
		24 VDC model:	2'200 µF max.
		36 VDC model:	1'000 µF max.
		48 VDC model:	550 µF max.
Minimum Load			Not required
Temperature Coefficient			±0.02 %/K max.
Hold-up Time	- At 230 VAC		40 ms min.
	- At 115 VAC		20 ms min.
Start-up Time	- At 230 VAC		730 ms max.
	- At 115 VAC		730 ms max.
Short Circuit Protection			Continuous, Automatic recovery
Output Current Limitation			120 - 160% of Iout max.
Overvoltage Protection			115 - 135% of Vout nom. (Latch off)
Transient Response	- Response Deviation		3% max. (50% to 75% Load Step at 2.5 A/µs)
	- Response Time		500 µs typ. (50% to 75% Load Step at 2.5 A/µs)

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

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Safety Specifications

Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	www.tracopower.com/overview/tpi125a-j
Protection Class		Class I & II (Prepared): Reinforced Insulation
Pollution Degree		PD 2
Over Voltage Category		OVC II

EMC Specifications

EMI (Emissions)	- Conducted Emissions		EN 55032 class B (internal filter) FCC 47 Part 15 class B (internal filter)
	- Radiated Emissions		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
		115 VAC / 60 Hz:	EN 61000-4-11
EMC / Environmental	- Certification Documents		www.tracopower.com/overview/tpi125a-j

General Specifications

Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		−40°C to +85°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/overview/tpi125a-j
Cooling System	- Option 1		Forced air cooling (with external fan, 400 LFM)
	- Option 2		Natural convection (20 LFM)
Altitude During Operation			5'000 m max.
Regulator Topology			Flyback Converter
Switching Frequency			60 kHz typ. (PWM QR)
Insulation System			Reinforced Insulation
Working Voltage (rated)			527 VAC
Isolation Test Voltage	- Input to Output, 60 s		4'000 VAC
Creepage	- Input to Output		8 mm min.
Clearance	- Input to Output		6.8 mm min.
Isolation Resistance	- Input to Output, 500 VDC		100 MΩ min.
Leakage Current (at 264 VAC)	- Touch Current		300 µA max.
Distance Through Isolation			0.4 mm
Reliability	- Calculated MTBF		790'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration		IEC 60068-2-6
	- Mechanical Shock		IEC 60068-2-27

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

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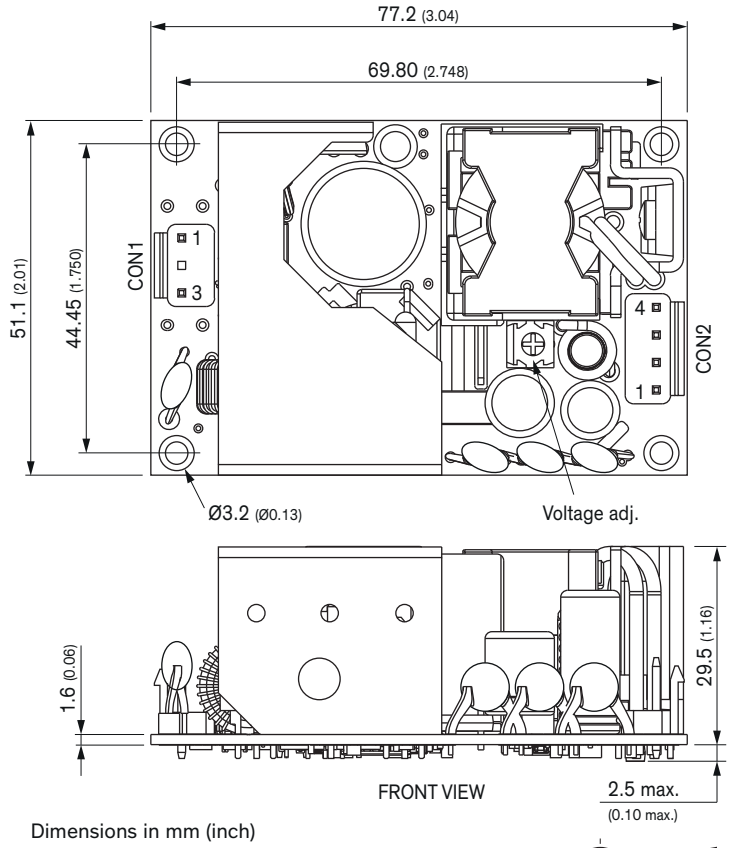
Housing Type		Open Frame
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		156 g
Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a, 7c-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)
	- SCIP Reference Number	e4d5a091-95d0-45c6-8dab-009f826a54f8

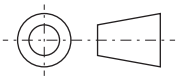
Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tpi125a-j

Outline Dimensions



Dimensions in mm (inch)
Tolerances: x.x ±0.5 (x.xx ±0.02)
Tolerances: x.xx±0.25 (x.xxx ±0.01)
Mounting screw lock torque: Max. 0.49 Nm (5 kgfcm)



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. per pin.

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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