

- 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



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 %

### Input Specifications

Input Voltage	- AC Range	Operational Range: <b>85 - 264 VAC</b> (Full Range) Rated Range: <b>100 - 240 VAC</b> (Full Range)
	- DC Range	Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification) Polarity: <b>+DC: L / -DC: N</b>
Input Frequency		Operational Range: <b>47 - 440 Hz</b> Certified: <b>50/60 Hz</b>
Power Consumption	- No load & Vin = 230 VAC	<b>300 mW max.</b> (Ready to meet ErP directive)
	- No load & Vin = 115 VAC	<b>300 mW max.</b>
Input Current	- Full load & Vin = 230 VAC	<b>700 mA max.</b>
	- Full load & Vin = 115 VAC	<b>1'800 mA max.</b>
Input Inrush Current	- At 230 VAC	<b>100 A max.</b>
	- At 115 VAC	<b>60 A max.</b>
Power Factor	- At 230 VAC	<b>0.95 min.</b> (Active Power Factor Correction)
	- At 115 VAC	<b>0.95 min.</b> (Active Power Factor Correction)
Input Protection		<b>T 3.15 A / 250 VAC</b> (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		<b>-20% to +10%</b> (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		<b>±1% max.</b>
Regulation	- Input Variation (Vmin - Vmax)	<b>0.2% max.</b>
	- Load Variation (0 - 100%)	<b>0.5% max.</b>
Boost Power		Output Current peak: See model table <b>150 W max. peak power</b> (≥ 130 VAC input) <b>140 W max. peak power</b> (< 130 VAC input) Peak power time: <b>10 s max.</b> Peak power duty cycle: <b>20% max.</b> Average operation power: <b>55% of full load</b> (detailed description see application note)
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	<b>140 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)
	15 VDC model:	<b>150 mVp-p typ.</b> (w/ 10 µF, 25 V, MLCC)
	24 VDC model:	<b>160 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)
	36 VDC model:	<b>190 mVp-p typ.</b> (w/ 1 µF, 50 V, MLCC)
	48 VDC model:	<b>340 mVp-p typ.</b> (w/ 0.1 µF, 100 V, MLCC)
Capacitive Load	12 VDC model:	<b>8'700 µF max.</b>
	15 VDC model:	<b>5'600 µF max.</b>
	24 VDC model:	<b>2'200 µF max.</b>
	36 VDC model:	<b>1'000 µF max.</b>
	48 VDC model:	<b>550 µF max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Hold-up Time	- At 230 VAC	<b>40 ms min.</b>
	- At 115 VAC	<b>20 ms min.</b>
Start-up Time	- At 230 VAC	<b>730 ms max.</b>
	- At 115 VAC	<b>730 ms max.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>
Output Current Limitation		<b>120 - 160% of Iout max.</b>
Overvoltage Protection		<b>115 - 135% of Vout nom.</b> (Latch off)

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

Transient Response	- Response Deviation	3% max. (50% to 75% Load Step at 2.5 A/ $\mu$ s)
	- Response Time	500 $\mu$ s typ. (50% to 75% Load Step at 2.5 A/ $\mu$ s)

### Safety Specifications

Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	<a href="http://www.tracopower.com/overview/tpi125a-j">www.tracopower.com/overview/tpi125a-j</a>
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)	- Electrostatic Discharge	EN 55024 (IT Equipment) EN 55035 (Multimedia) Air: EN 61000-4-2, $\pm 8$ kV, perf. criteria A Contact: EN 61000-4-2, $\pm 6$ kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 20 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, $\pm 2$ kV, perf. criteria A L to L: EN 61000-4-5, $\pm 1$ 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

### 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: <a href="http://www.tracopower.com/overview/tpi125a-j">www.tracopower.com/overview/tpi125a-j</a>
Cooling System	- Option 1 - Option 2	Forced air cooling (with external fan, 400 LFM) 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 M $\Omega$ min.
Leakage Current (at 264 VAC)	- Touch Current	300 $\mu$ A max.
Distance Through Isolation		0.4 mm

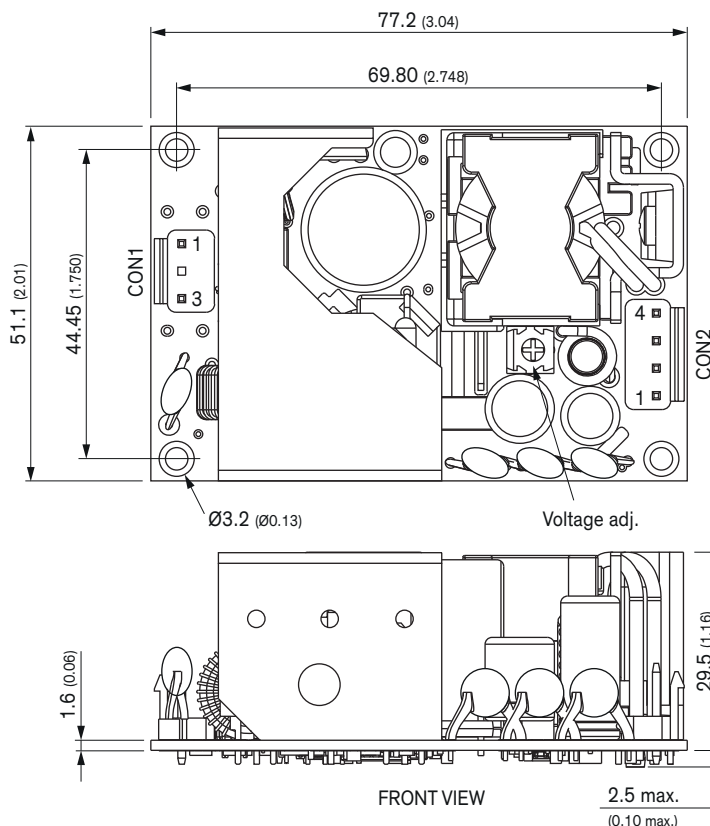
All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

Reliability	- Calculated MTBF	790'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration - Mechanical Shock	IEC 60068-2-6 IEC 60068-2-27
Housing Type		Open Frame
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		156 g
Environmental Compliance	- REACH Declaration  - RoHS Declaration  - SCIP Reference Number	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> REACH SVHC list compliant REACH Annex XVII compliant <a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> Exemptions: 7a, 7c-1 (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule.)) e4d5a091-95d0-45c6-8dab-009f826a54f8

### Supporting Documents

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