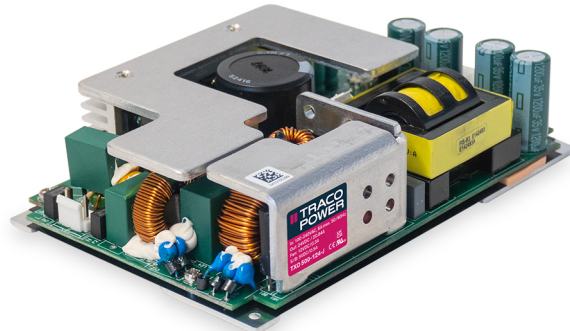


- Industrial AC/DC power supplies for cost sensitive applications in 6" x 4" package
- Universal input range 90 to 264 VAC
- Operating temperature range: -20°C to +70°C
- Protection class II prepared
- Internal EN 55032 class B filter
- Short circuit, overvoltage and overload protection
- Remote On/Off, Sense and standby power output functions
- IEC/EN/UL 62368-1 safety approvals
- Compliance to EN 61000-3-2
- 3-year product warranty



The TXO 500 is a compact 500 Watt AC/DC open frame module with reinforced I/O isolation designed for a wide range of cost sensitive applications. A high efficiency of 92% allows the TXO 500 to deliver 290 Watt up to +50°C with convection cooling and 500 Watt up to +50°C with forced air cooling, while going up to +70°C with derating. It comes with an active power factor correction and EMC characteristics dedicated for applications in industrial/automation and test & measurement fields. The TXO 500 also features auxiliary functions like remote on/off, sense function and standby power making these power supplies an ideal solution for various industrial and cost sensitive applications.

Models					
Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max. (Forced air cooling)	Output Current max. (Natural convection)	Efficiency typ.
TXO 500-112-J	450 W	12 VDC (11.04 - 12.96 VDC)	37'500 mA	20'000 mA	89 %
TXO 500-115-J		15 VDC (13.8 - 16.2 VDC)	30'000 mA	16'000 mA	89 %
TXO 500-124-J	500 W	24 VDC (22.8 - 25.2 VDC)	20'840 mA	12'080 mA	91 %
TXO 500-148-J		48 VDC (45.6 - 50.4 VDC)	10'420 mA	6'040 mA	92 %

Options	
TXO 500-AUX	- Optional Cable: <a href="http://www.tracopower.com/overview/txo500-aux">www.tracopower.com/overview/txo500-aux</a>
TXO 500-DC	- Optional Cable: <a href="http://www.tracopower.com/overview/txo500-dc">www.tracopower.com/overview/txo500-dc</a>
on demand (backorder with MOQ non stocking item)	- Optional model with 36 VDC and 13'890 mA - Optional model with 56 VDC and 8'930 mA

Note - Total output power must not exceed 240 W (12/15 Vout models) or 290 W (other Vout models) when convection cooled

### Input Specifications

Input Voltage	- AC Range	Operational Range: <b>90 - 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>irrelevant</b>
Input Frequency		Operational Range: <b>47 - 63 Hz</b> Certified: <b>50/60 Hz</b>
Power Consumption	- No load & Vin = 230 VAC	<b>8.5 W max.</b>
	- No load & Vin = 115 VAC	<b>8.5 W max.</b>
Input Current	- Full load & Vin = 230 VAC	<b>2'600 mA max.</b>
	- Full load & Vin = 115 VAC	<b>5'000 mA max.</b>
Input Inrush Current	- At 230 VAC	<b>110 A max.</b>
	- At 115 VAC	<b>65 A max.</b>
Power Factor	- At 230 VAC	<b>0.9 min.</b> (Active Power Factor Correction)
	- At 115 VAC	<b>0.92 min.</b> (Active Power Factor Correction)
Input Protection		<b>T 8.0 A / 250 VAC</b> (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		<b>±8%</b> (12 & 15 Vout models) <b>±5%</b> (other Vout models) (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy		<b>±1.5% max.</b> (main output) <b>±5% max.</b> (Standby output) <b>±4% max.</b> (Fan output)
Regulation	- Input Variation (Vmin - Vmax)	<b>0.5% max.</b>
	- Load Variation (10 - 100%)	<b>3% max.</b> (Main Output) <b>5% max.</b> (Fan Output & Standby Output)
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	<b>200 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
	15 VDC model:	<b>240 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
	24 VDC model:	<b>240 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
	36 VDC model:	<b>360 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
	48 VDC model:	<b>480 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
	56 VDC model:	<b>560 mVp-p max.</b> (w/ 22 µF ELCO    0.1 µF MLCC)
Capacitive Load	12 VDC model:	<b>30'000 µF max.</b>
	15 VDC model:	<b>18'000 µF max.</b>
	24 VDC model:	<b>8'000 µF max.</b>
	36 VDC model:	<b>5'000 µF max.</b>
	48 VDC model:	<b>2'100 µF max.</b>
	56 VDC model:	<b>1'800 µF max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.05 %/K max.</b>
Hold-up Time	- At 230 VAC	<b>10 ms min.</b>
	- At 115 VAC	<b>10 ms min.</b>
Start-up Time	- At 230 VAC	<b>2'000 ms max.</b>
	- At 115 VAC	<b>3'500 ms max.</b>
Start-up Overshoot Voltage		<b>10% max.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>

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

Output Current Limitation		110 - 200% of I <sub>out</sub> max. (Main Output) 110 - 350% of I <sub>out</sub> max. (Fan Output & Standby Output)
Overvoltage Protection		105 - 150% of V <sub>out</sub> nom. (Main Output - Automatic recovery) 105 - 180% of V <sub>out</sub> nom. (Fan Output & Standby Output - Latch Off)
Transient Response	- Response Deviation - Response Time	3% typ. / 5% max. (50% to 75% Load Step) 2 ms typ. / 1 ms max. (50% to 75% Load Step)

### Safety Specifications

Standards	- IT / Multimedia Equipment  - Certification Documents	EN 62368-1 IEC 62368-1 UL 62368-1 <a href="http://www.tracopower.com/overview/txo500">www.tracopower.com/overview/txo500</a>
Protection Class		Class I & II (Prepared): Reinforced Insulation
Pollution Degree		PD 2
Over Voltage Category		OVC II

### EMC Specifications

EMI (Emissions)	- Conducted Emissions  - Radiated Emissions  - Harmonic Current Emissions - Voltage Fluctuations & Flicker	EN 55032 class B (internal filter) FCC 47 Part 15 class B (internal filter) EN 55032 class A (internal filter) FCC 47 Part 15 class A (internal filter) EN 61000-3-2, class A EN 61000-3-3
EMS (Immunity)	- Electrostatic Discharge  - RF Electromagnetic Field - EFT (Burst) / Surge  - Conducted RF Disturbances - PF Magnetic Field - Voltage Dips & Interruptions	Air: EN 61000-4-2, ±8 kV, perf. criteria A Contact: EN 61000-4-2, ±4 kV, perf. criteria A EN 61000-4-3, 3 V/m, perf. criteria A EN 61000-4-4, ±1 kV, perf. criteria A L to L: EN 61000-4-5, ±1 kV, perf. criteria A L to PE: EN 61000-4-5, ±2 kV, perf. criteria A EN 61000-4-6, 3 Vrms, perf. criteria A Continuous: EN 61000-4-8, 1 A/m, perf. criteria A 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
EMC / Environmental	- Certification Documents	<a href="http://www.tracopower.com/overview/txo500">www.tracopower.com/overview/txo500</a>

### General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Approved Ambient Temp.  - Storage Temperature	-20°C to +70°C +70°C max. (for 50% load) +50°C max. (for 100% load) (for compliance to 62368-1) -40°C to +85°C
Power Derating	- High Temperature - Low Input Voltage	2.5 %/K above 50°C 1.44 %/V below 115 VAC (with natural convection) See application note: <a href="http://www.tracopower.com/overview/txo500">www.tracopower.com/overview/txo500</a>
Over Temperature Protection Switch Off	- Protection Mode  - Measurement Point	95°C min. / 105°C typ. / 115°C max. (Automatic recovery at 65°C typ.) Internal IC temperature

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

Cooling System	- Option 1 - Option 2	Forced air cooling (with external fan, 15 CFM) Natural convection (20 LFM)
Fan Power Source	- Characteristic - Output Voltage - Output Current	Constant fan speed (continuous) 12 VDC 300 mA max.
Standby Power Source	- Output Voltage - Output Current	5 VDC 500 mA max.
Remote Control	- Voltage Controlled Remote (passive = on)	On: open circuit Off: short circuit Refers to '+Remote' and '-Remote' Pin
Altitude During Operation		2'000 m max.
Regulator Topology		LCC Converter
Switching Frequency		92 - 280 kHz (PFM) 100 kHz typ. (PFM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		348 VAC
Isolation Test Voltage	- Input to Output, 60 s - Input to Case or PE, 60 s - Output to Case or PE, 60 s	4'242 VDC 2'500 VAC 500 VAC
Creepage	- Input to Output - Input to Case or PE - Output to Case or PE	6.5 mm min. 5.5 mm min. 1.3 mm min.
Clearance	- Input to Output - Input to Case or PE - Output to Case or PE	6 mm min. 5 mm min. 1.3 mm min.
Isolation Resistance	- Input to Output, 500 VDC	100 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	1'835 pF typ. / 2'202 pF max.
Leakage Current (at 264 VAC / 60 Hz)	- Earth Leakage Current	250 μA max.
Reliability	- Calculated MTBF	100'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration  - Mechanical Shock	2.4 g, 3 axis, random waveform, 50-500 Hz, 10 min/axis 20 g, 3 axis, 3 shocks
Housing Type		Open Frame, L-Bracket
Mounting Type		Chassis Mount
Connection Type		Pin Connector
Weight		720 g
Power OK Signal	- Power OK - Power Off	Voltage source output High level Low level (Refers to 'PG' and 'GND' Pin)
Sense Function		(If sense function is not used, sense pins should be left open/floating.)
Environmental Compliance	- RoHS Declaration  - SCIP Reference Number	<a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> <b>Exemptions: 7a</b> (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) 88f88f2e-2dbe-4e2e-af7b-89e98b94c167

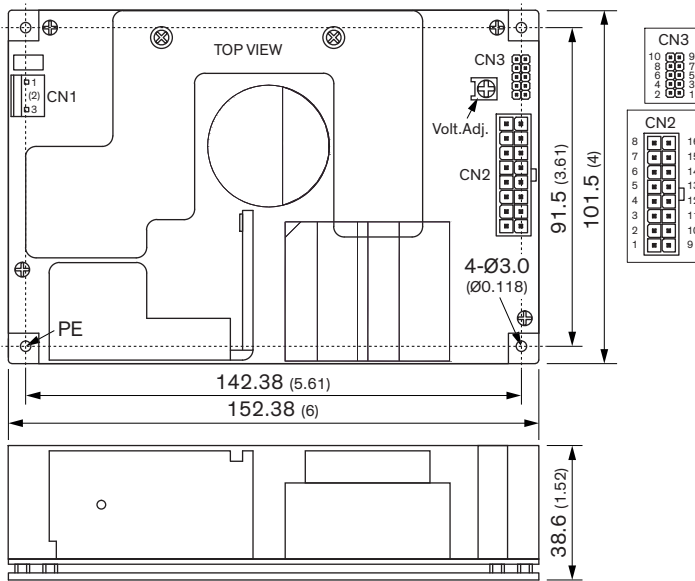
## Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/txo500](http://www.tracopower.com/overview/txo500)

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

### Outline Dimensions



Dimensions in mm (inch)  
Tolerances:  $\pm 0.5$  ( $\pm 0.02$ )

Input	
CN1	
Pin	Function
1	AC (L)
2	No Pin
3	AC (N)

Output	
CN2	
Pin	Function
1-4	-Vout*
9-12	
5-8	+Vout
13-16	

Auxiliary	
CN3	
Pin	Function
1	-Sense
2	+Sense
3	GND*
4	PG
5	-Remote
6	+Remote
7	GND Standby*
8	+5V Standby
9	GND Fan*
10	+12V Fan

\*Internally connected

**Input (CN1):** JST crimp terminal series mates with JST crimp terminal: BVH-21T-P1.1 or Equivalent and terminal housing: VHR-3N or Equivalent

**Output (CN2):** Molex Mini-Fit Jr. series mates with JST crimp terminal: SVH-21T-P1.1 or Equivalent and terminal housing: VHR-2N or Equivalent

**Auxiliary (CN3):** JST connector series mates with JST Connector: RF-10 or Equivalent and terminal housing: RF-SC2210 or Equivalent