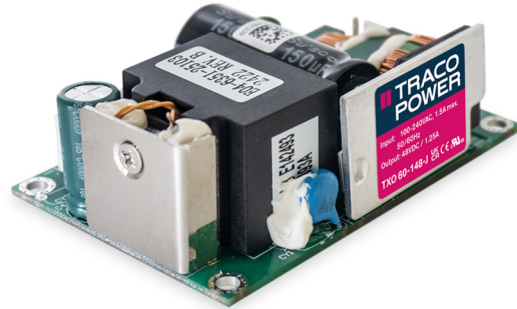


- Compact open frame power supply with pin connectors
- Universal input range 85 to 264 VAC
- Convection cooled (no-fan)
- Operating temperature range: -20°C to +70°C
- Internal EN55032 class B filter
- Short circuit, overvoltage and overload protection
- IEC/EN/UL 62368-1 safety approvals
- Compliance to EN 61000-3-2
- 3-year product warranty



UL 62368-1 IEC 62368-1

The TXO 60 is a compact 60 Watt AC/DC open frame module with reinforced I/O isolation designed for a wide range of cost sensitive applications. Excellent temperature behaviour allows full load operation from -20°C to +50°C while going up to +70°C with derating. The TXO 60 series features short circuit protection, over current limitation and overvoltage protection and complies with European EMC standards and the Low Voltage Directive (LVD).

Models

Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Efficiency typ.
TXO 60-112-J	60 W	12 VDC	5'000 mA	85 %
TXO 60-115-J		15 VDC	4'000 mA	85 %
TXO 60-124-J		24 VDC	2'500 mA	85 %
TXO 60-148-J		48 VDC	1'250 mA	85 %

Options

TCI 130-DC	- Optional Cable: www.tracopower.com/overview/tci130-dc
TCI-AC1	- Optional Cable: www.tracopower.com/overview/tci-ac1
on demand (backorder with MOQ non stocking item)	- Optional model with 36 VDC and 1'670 mA - Optional model with 56 VDC and 1'070 mA

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: irrelevant
Input Frequency		Operational Range: 47 - 63 Hz Certified: 50/60 Hz
Power Consumption	- No load & Vin = 230 VAC	100 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC	100 mW max.
Input Current	- Full load & Vin = 230 VAC	750 mA max.
	- Full load & Vin = 115 VAC	1'250 mA max.
Input Inrush Current	- At 230 VAC	80 A max.
	- At 115 VAC	40 A max.
Input Protection		T 3.15 A / 250 VAC (Internal Fuse in L)
Recommended Input Fuse		3'150 mA (slow blow) (The need of an external fuse has to be assessed in the final application.)

Output Specifications

Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax)	0.5% max.
	- Load Variation (10 - 100%)	3% max.
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	120 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
	15 VDC model:	150 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
	24 VDC model:	240 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
	36 VDC model:	360 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
	48 VDC model:	480 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
	56 VDC model:	560 mVp-p typ. (w/ 10 µF Alu 0.1 µF MLCC)
Capacitive Load	12 VDC model:	4'600 µF max.
	15 VDC model:	3'300 µF max.
	24 VDC model:	1'800 µF max.
	36 VDC model:	1'060 µF max.
	48 VDC model:	500 µF max.
	56 VDC model:	360 µF max.
Minimum Load		Not required
Temperature Coefficient		±3 %/K max.
Hold-up Time	- At 230 VAC	60 ms min.
	- At 115 VAC	15 ms min.
Start-up Time	- At 230 VAC	1.5 s max.
	- At 115 VAC	3 s max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		110 - 200% of Iout max.
Overvoltage Protection		110 - 170% of Vout nom. (Latch mode)
Transient Response	- Response Deviation	3% typ. / 5% max. (50% to 75% Load Step)
	- Response Time	1 ms typ. / 1.5 ms max. (50% to 75% Load Step)

Safety Specifications

Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	www.tracopower.com/txo60-safety-cert
Protection Class		Class I & II (Prepared): Reinforced Insulation See application note: www.tracopower.com/overview/txo60

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

Pollution Degree	PD 2
Over Voltage Category	OVC II

EMC Specifications

EMI (Emissions)	- Conducted Emissions	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 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)
	- Harmonic Current Emissions - Voltage Fluctuations & Flicker	EN 61000-3-2, class A EN 61000-3-3
EMS (Immunity)	- Electrostatic Discharge	EN 55035 (Multimedia) 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
	- RF Electromagnetic Field - EFT (Burst) / Surge	L to L: EN 61000-4-5, ± 1 kV, perf. criteria A EN 61000-4-6, 3 Vrms, perf. criteria A
	- Conducted RF Disturbances - PF Magnetic Field - Voltage Dips & Interruptions	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	www.tracopower.com/txo60-emc-cert

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-20°C to +70°C
	- Approved Ambient Temp.	+70°C max. (for 50% load) +50°C max. (for 100% load) (for compliance to 62368-1)
	- Storage Temperature	-40°C to +85°C
Power Derating	- High Temperature	2.5 %/K above 50°C
	- Low Input Voltage	2 %/V below 90 VAC
	See application note: www.tracopower.com/txo60-cc	
Cooling System		Natural convection (20 LFM)
Altitude During Operation		2'000 m max.
Regulator Topology		Flyback Converter
Switching Frequency		65 kHz typ. (PWM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		576 VAC
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC (4'242 VDC)
Creepage	- Input to Output	6 mm min.
Clearance	- Input to Output	6 mm min.
Isolation Resistance	- Input to Output, 500 VDC	100 M Ω min.
Leakage Current (at 264 VAC / 60 Hz)	- Touch Current	100 μ A max.
Reliability	- Calculated MTBF	100'000 h (MIL-HDBK-217F, ground benign)
Washing Process		Not allowed
Environment	- Vibration	2.4 g, 3 axis, random waveform, 30 min
	- Mechanical Shock	20 g, 3 axis, 6 shocks
Housing Type		Open Frame
Mounting Type		Chassis Mount

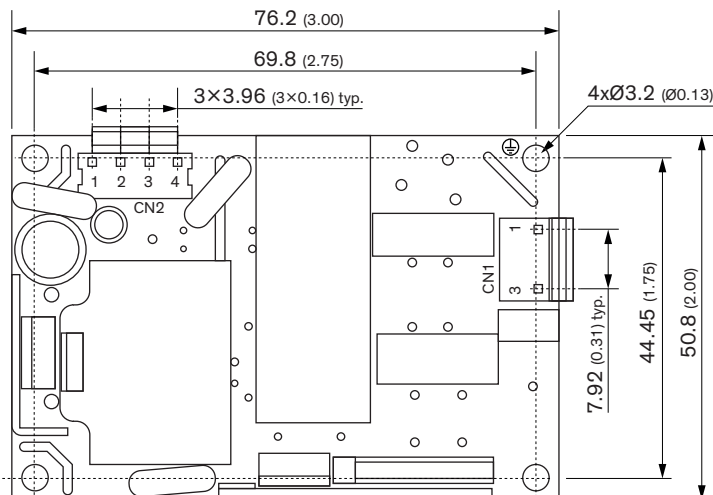
All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

Connection Type	Pin Connector
Weight	120 g
Environmental Compliance	- REACH Declaration - RoHS Declaration - SCIP Reference Number
	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a) (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) c09fb5a7-398c-470a-ae2-dc5745c093f7

Additional Information

Supporting Documents	www.tracopower.com/overview/txo60
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

Outline Dimensions



Dimensions in mm (inch)
General tolerances: ± 0.5 (± 0.02)
Mounting screw tightening torque: 0.59 Nm max. (6.0 kgfcm max.)

Pin connectors

Input (CN1)		Output (CN2)	
Pin	Function	Pin	Function
1	AC (N)	1	-Vout
3	AC (L)	2	
		3	+Vout
		4	

Input: JST series, B3P-VH(LF)(SN), 3.96mm mates with JST crimp terminal: SVH-21T-P1.1 or equivalent and terminal housing: VHR-3N or equivalent

Output: JST series, B4P-VH(LF)(SN), 3.96mm mates with JST crimp terminal: SVH-21T-P1.1 or equivalent and terminal housing: VHR-4N or equivalent