

- Compact U-bracket power supplies with optional cover
- Universal input range 90 to 264 VAC
- 4000 VAC I/O-isolation
- High efficiency up to 93 %
- Operating temperature range: -10°C to +70°C max.
- Features active power factor correction
- Short circuit and over voltage protection



The TXH series is a family of power supplies in metal enclosure, designed for a wide range of cost critical applications. The very high efficiency of up to 93% admits of a compact design with free air convection cooling for the 120 and 240 Watt models. The units are equipped with screw terminal blocks and are easy to install in any equipment. These power supplies have universal input and comply with European EMC standards and the Low Voltage Directive (LVD).

### Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max.	Efficiency typ.
TXH 240-112	240 W	12 VDC (11.4 - 12.6 VDC)	20'000 mA	90 %
TXH 240-124		24 VDC (22.8 - 25.2 VDC)	10'000 mA	92 %
TXH 240-148		48 VDC (45.6 - 50.4 VDC)	5'000 mA	93 %

### Options

TXH 240-COV	- Optional Cover: <a href="http://www.tracopower.com/products/txh240-cov.pdf">www.tracopower.com/products/txh240-cov.pdf</a>
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### 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 - 440 Hz</b> Certified: <b>50/60 Hz</b>
Input Current	- Full Load & Vin = 230 VAC	<b>1'500 mA max.</b>
	- Full Load & Vin = 115 VAC	<b>3'000 mA max.</b>
Power Consumption	- No load & Vin = 230 VAC	<b>2'500 mW max.</b>
	- No load & Vin = 115 VAC	<b>2'500 mW max.</b>
Input Inrush Current	- At 230 VAC	<b>60 A max.</b>
	- At 115 VAC	<b>30 A max.</b>
Power Factor	- At 230 VAC	<b>0.95 min.</b> (Active Power Factor Correction)
	- At 115 VAC	<b>0.98 min.</b> (Active Power Factor Correction)
Input Protection		<b>T 5 A / 250 VAC</b>
Recommended Input Fuse		(The need of an external fuse has to be assessed in the final application.)

### Output Specifications

Output Voltage Adjustment		<b>±5%</b> (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy		<b>±2% max.</b>
Regulation	- Input Variation (Vmin - Vmax)	<b>1% max.</b>
	- Load Variation (0 - 100%)	<b>1% max.</b>
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	<b>120 mVp-p max.</b> (w/ 0.1 µF    47 µF)
	24 VDC model:	<b>200 mVp-p max.</b> (w/ 0.1 µF    47 µF)
	48 VDC model:	<b>200 mVp-p max.</b> (w/ 0.1 µF    47 µF)
Capacitive Load	12 VDC model:	<b>23'000 µF max.</b>
	24 VDC model:	<b>10'000 µF max.</b>
	48 VDC model:	<b>470 µF max.</b>
Minimum Load		<b>2 % of Iout max.</b>
Temperature Coefficient		<b>±0.03 %/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>750 ms max.</b>
	- At 115 VAC	<b>250 ms max.</b>
Short Circuit Protection		<b>Automatic recovery</b>
Output Current Limitation		<b>160 - 240% of Iout max.</b>
Overvoltage Protection		<b>105 - 145% of Vout nom.</b> (By Zener diode)
Transient Response	- Response Deviation	<b>2% max.</b> (75% to 100% Load Step)
	- Response Time	<b>500 µs typ.</b> (75% to 100% Load Step)

### Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1
	- Certification Documents	<a href="http://www.tracopower.com/overview/txh240">www.tracopower.com/overview/txh240</a>
Protection Class		<b>Class I</b> (Prepared): <b>Connection to PE</b>
Pollution Degree		<b>PD 2</b>
Over Voltage Category		<b>OVC II</b>

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

## EMC Specifications

EMI Emissions	- Conducted Emissions	EN 55032 class B (internal filter)
	- Radiated Emissions	EN 55032 class B (internal filter)
	- Harmonic Current Emissions	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, $\pm 8$ kV, perf. criteria A Contact: EN 61000-4-2, $\pm 4$ kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 3 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, $\pm 1$ kV, perf. criteria A L to L: EN 61000-4-5, $\pm 1$ kV, perf. criteria A L to PE: EN 61000-4-5, $\pm 2$ kV, perf. criteria A
	- Conducted RF Disturbances	EN 61000-4-6, 3 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous: EN 61000-4-8, 1 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz: 30%, 25 periods, perf. criteria C >95%, 0.5 periods, perf. criteria B >95%, 25 periods, perf. criteria C

## General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-10°C to +70°C
	- Storage Temperature	-25°C to +85°C
Power Derating	- High Temperature	2.5 %/K above 50°C
	- Low Input Voltage	Depending on model
	See application note:	<a href="http://www.tracopower.com/overview/txh240">www.tracopower.com/overview/txh240</a>
Cooling System		Natural convection (20 LFM)
Altitude During Operation		4'000 m max.
Switching Frequency		70 - 200 kHz (PWM)
		100 kHz typ. (PWM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		251 VAC
Isolation Test Voltage	- Input to Output, 60 s	4'000 VAC
	- Input to Case or PE, 60 s	2'000 VAC
	- Output to Case or PE, 60 s	500 VAC
Creepage	- Input to Output	5 mm min.
Clearance	- Input to Output	4 mm min.
Leakage Current	- Earth Leakage Current	2400 $\mu$ A max.
	- Touch Current	500 $\mu$ A max.
Reliability	- Calculated MTBF	120'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration	2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle
Housing Type		U-Bracket
Mounting Type		Chassis Mount
Connection Type		Screw Terminal
Weight		580 g
Environmental Compliance	- REACH Declaration	<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
	- RoHS Declaration	<a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> 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	bf13b367-88e2-480e-86d2-bb14ffda4807

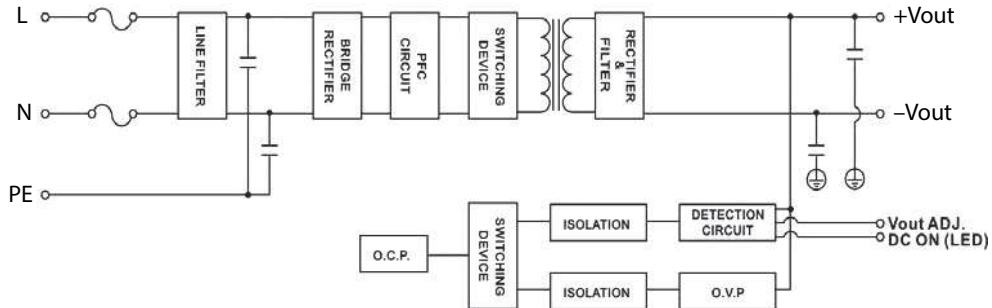
All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

### Supporting Documents

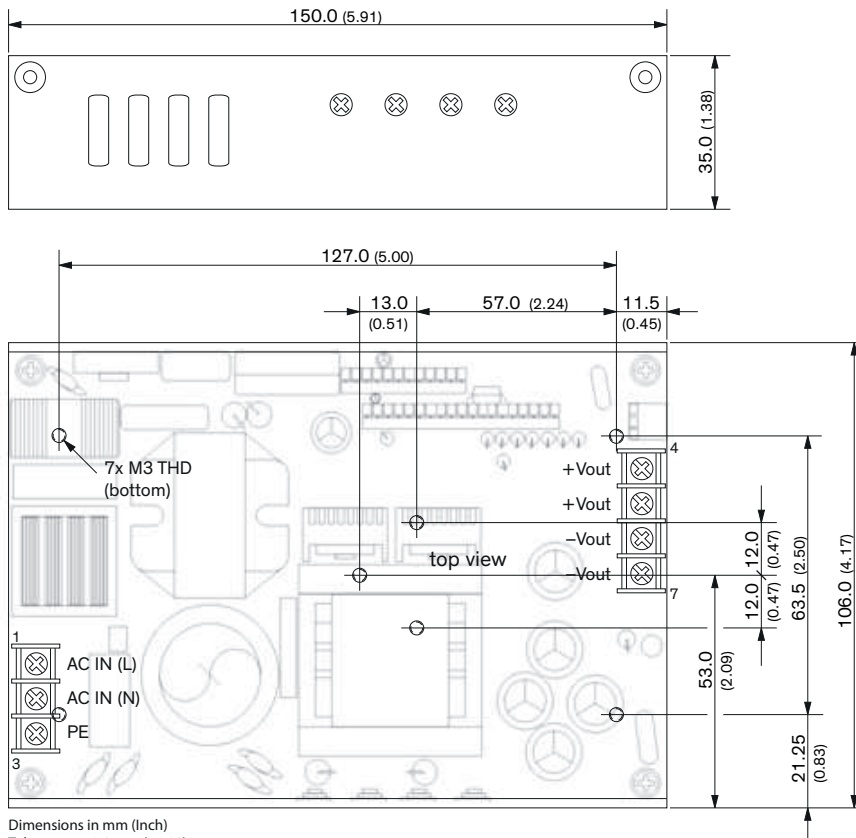
Overview Link (for additional Documents)

[www.tracopower.com/overview/txh240](http://www.tracopower.com/overview/txh240)

### Blockdiagram



### Outline Dimensions



Dimensions in mm (Inch)  
 Tolerances:  $\pm 0.8$  mm ( $\pm 0.03$ )  
 Mounting hole pitch tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )  
 Mounting screw locked torque: max. 5 Nm (0.49 kgfcm)  
 Max mounting screw penetration: 2.5 mm (0.10)

### Pin Connections

Pin	Function
1	AC IN (L)
2	AC IN (N)
3	PE
4, 5	+Vout
6, 7	-Vout

Mounting screw locked torque:  
 0.29 Nm (3 kgfcm)