



**THE DATASHEET OF
TXH 060-148**



- Enclosed power supplies with screw terminal block
- Universal input range 90 to 264 VAC
- Ready to meet ErP directive, < 0.3 W no load power consumption
- Adjustable output voltage
- 4242 VDC I/O-isolation
- High efficiency up to 88%
- Operating temperature range: -30°C to +70°C max.
- Short circuit and over voltage protection



UL 62368-1 IEC 62368-1

The TXH 060 series is a family of power supplies in metal enclosure, designed for a wide range of cost critical applications. The high efficiency of up to 88% is achieved through an innovative design for free air convection cooling. This design also qualifies the power supply to meet the ErP directive (< 0.3 W no load power consumption). 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 060-105	50 W	5 VDC (4.8 - 5.3 VDC)	10'000 mA	81 %
TXH 060-112	60 W	12 VDC (11.4 - 12.6 VDC)	5'000 mA	87 %
TXH 060-115		15 VDC (14.3 - 15.8 VDC)	4'000 mA	87 %
TXH 060-124		24 VDC (22.8 - 25.2 VDC)	2'500 mA	88 %
TXH 060-148		48 VDC (45.6 - 50.4 VDC)	1'250 mA	88 %

Input Specifications

Input Voltage	- AC Range	Operational Range: 90 - 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
Input Current	- Full Load & Vin = 230 VAC - Full Load & Vin = 115 VAC	1'000 mA max. 2'000 mA max.
Power Consumption	- No load & Vin = 230 VAC - No load & Vin = 115 VAC	300 mW max. (Ready to meet ErP directive) 300 mW max.
Input Inrush Current	- At 230 VAC - At 115 VAC	70 A max. 35 A max. (An external Thermistor has to be integrated in the circuit at the converter input L. Thermistor recommendation: 10R / 15z)
Recommended Input Fuse		(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment		±5% (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax) - Load Variation (0 - 100%)	1% max. 1% max.
Ripple and Noise (20 MHz Bandwidth)		5 VDC model: 75 mVp-p max. (w/ 0.1 µF 47 µF) 12 VDC model: 100 mVp-p max. (w/ 0.1 µF 47 µF) 15 VDC model: 125 mVp-p max. (w/ 0.1 µF 47 µF) 24 VDC model: 150 mVp-p max. (w/ 0.1 µF 47 µF) 48 VDC model: 200 mVp-p max. (w/ 0.1 µF 47 µF)
Capacitive Load		5 VDC model: 10'000 µF max. 12 VDC model: 5'000 µF max. 15 VDC model: 4'000 µF max. 24 VDC model: 2'000 µF max. 48 VDC model: 1'000 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Hold-up Time	- At 230 VAC - At 115 VAC	55 ms min. 10 ms min.
Start-up Time	- At 230 VAC - At 115 VAC	400 ms max. 500 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		115 - 160% of Iout max.
Oversvoltage Protection		105 - 145% of Vout nom. (By Zener diode)
Transient Response	- Response Deviation - Response Time	2% max. (75% to 100% Load Step) 500 µs typ. (75% to 100% Load Step)

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

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	www.tracopower.com/overview/txh060
Protection Class		Class I (Prepared): Connection to PE
Pollution Degree		PD 2
Over Voltage Category		OVC II

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 B
	- 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, ± 4 kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, ± 2 kV, perf. criteria A
		L to L: EN 61000-4-5, ± 2 kV, perf. criteria A
		L to PE: EN 61000-4-5, ± 2 kV, perf. criteria A
	- Conducted RF Disturbances	EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous: EN 61000-4-8, 30 A/m, perf. criteria A
	- Voltage Dips & Interruptions	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 C

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-30°C to +70°C
	- Storage Temperature	-50°C to +85°C
Power Derating	- High Temperature	Depending on model
	- Low Input Voltage	2 %/V below 100 VAC
		See application note: www.tracopower.com/overview/txh060
Cooling System		Natural convection (20 LFM)
Altitude During Operation		3'100 m max.
Switching Frequency		60 - 70 kHz (PWM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		305 VAC
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
	- Input to Case or PE, 60 s	1'500 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	1000 μ A max.
	- Touch Current	750 μ A max.
Reliability	- Calculated MTBF	130'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration	2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle
Housing Type		Metal Case
Mounting Type		Chassis Mount

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

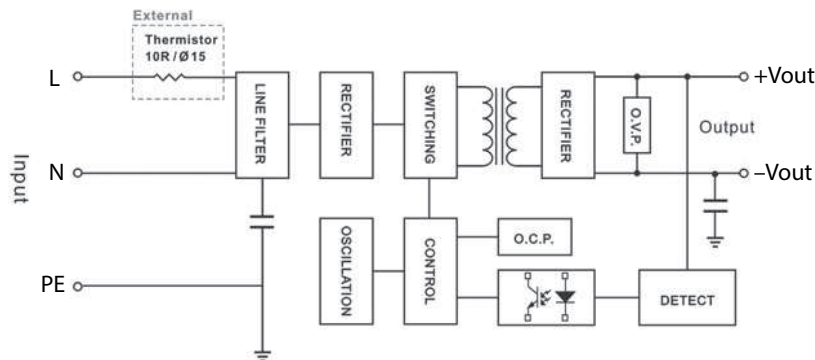
Connection Type	Screw Terminal
Weight	220 g
Environmental Compliance	- REACH Declaration www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a, 7c-l (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule)) dde82755-ee32-4a25-9933-3be65a0700e5
	- RoHS Declaration
	- SCIP Reference Number

Supporting Documents

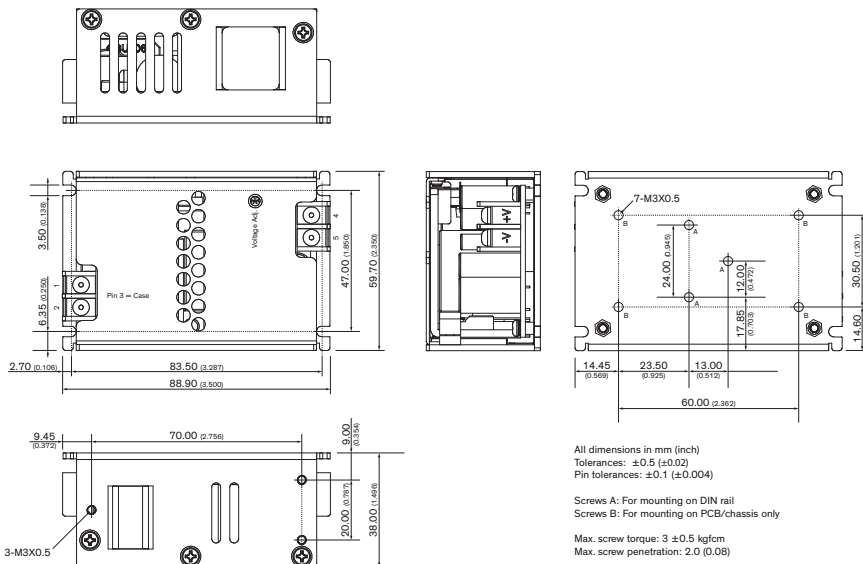
Overview Link (for additional Documents)

www.tracopower.com/overview/txh060

Blockdiagram



Outline Dimensions





Pin Connections

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

Mounting screw locked torque:
0.29 Nm (3 kgfcm)

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View TXH 060-148 on WIN SOURCE](#)
-  [Traco Power Information](#)

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