

- 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
- 3-year product warranty



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
Power Consumption	- No load & Vin = 230 VAC	300 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC	300 mW max.
Input Current	- Full load & Vin = 230 VAC	1'000 mA max.
	- Full load & Vin = 115 VAC	2'000 mA max.
Input Inrush Current	- At 230 VAC	70 A max.
	- At 115 VAC	35 A max. (An external Thermistor has to be integrated in the circuit at the converter input L. Thermistor recommendation: 10R / 15z)
Input Protection		T 3.15 A / 250 VAC (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		±5% (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax)	1% max.
	- Load Variation (0 - 100%)	1% max.
Ripple and Noise (20 MHz Bandwidth)	5 VDC model:	75 mVp-p max. (w/ 0.1 μ F 47 μ F)
	12 VDC model:	100 mVp-p max. (w/ 0.1 μ F 47 μ F)
	15 VDC model:	125 mVp-p max. (w/ 0.1 μ F 47 μ F)
	24 VDC model:	150 mVp-p max. (w/ 0.1 μ F 47 μ F)
	48 VDC model:	200 mVp-p max. (w/ 0.1 μ F 47 μ F)
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	55 ms min.
	- At 115 VAC	10 ms min.
Start-up Time	- At 230 VAC	400 ms max.
	- At 115 VAC	500 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		115 - 160% of Iout max.
Overvoltage Protection		105 - 145% of Vout nom. (By Zener diode)
Transient Response	- Response Deviation	2% max. (75% to 100% Load Step)
	- Response Time	500 μs typ. (75% to 100% Load Step)

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

Safety Specifications

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/txh060-safety-cert
Protection Class		Class I (Prepared): Connection to PE
	See application note:	www.tracopower.com/info/protection-class.pdf
Energy Source	- Output, acc. to 62368-1	ES1
Power Source	- Output, acc. to 62368-1	PS2
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)
	- Radiated Emissions	EN 55032 class A (internal filter) 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
EMC / Environmental	- Certification Documents	www.tracopower.com/txh060-emc-cert

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Storage Temperature	-30°C to +70°C -50°C to +85°C
Power Derating	- High Temperature - Low Input Voltage	Depending on model 2.0 %/V below 100 VAC
	See application note:	www.tracopower.com/txh060-cc
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 - Input to Case or PE, 60 s - Output to Case or PE, 60 s	3'000 VAC 1'500 VAC 500 VAC
Creepage	- Input to Output	5 mm min.
Clearance	- Input to Output	4 mm min.

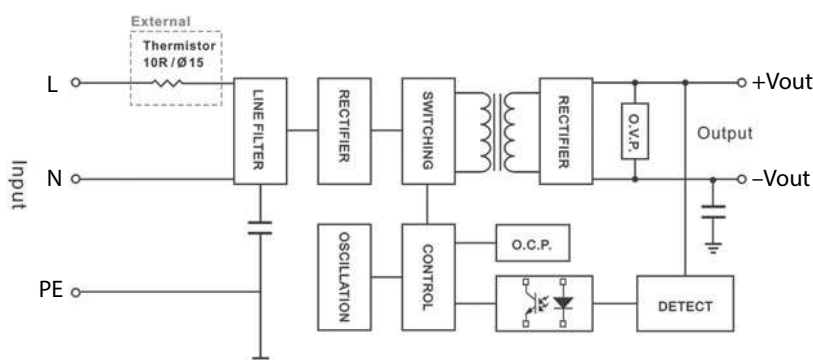
All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

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
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
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a), 7(c)-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)
	- SCIP Reference Number	dde82755-ee32-4a25-9933-3be65a0700e5

Additional Information

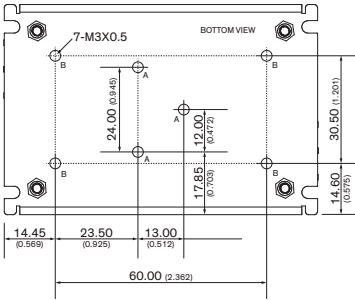
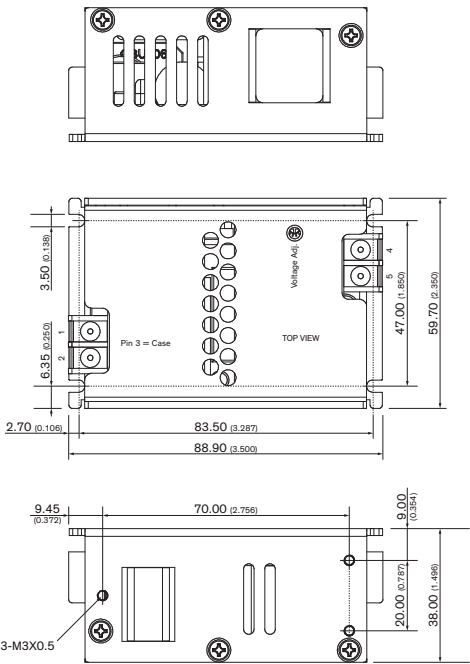
Supporting Documents	www.tracopower.com/overview/txh060
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf

Blockdiagram



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

Outline Dimensions



All dimensions in mm (inch)
Tolerances: ± 0.5 (± 0.02)
Pin tolerances: ± 0.1 (± 0.004)

Screws A: For mounting on DIN rail
Screws B: For mounting on PCB/chassis only

Max. screw torque: 3 ± 0.5 kgfcm
Max. screw penetration: 2.0 (0.08)

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)