

- 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: -25°C to +70°C max.
- Features active power factor correction
- Current limitation, short circuit and over voltage protection



UL 62368-1 IEC 62368-1

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 120-112 | 120 W             | 12 VDC (11.4 - 13.2 VDC)         | 10'000 mA           | 90 %            |
| TXH 120-124 |                   | 24 VDC (22.8 - 26.4 VDC)         | 5'000 mA            | 93 %            |
| TXH 120-148 |                   | 48 VDC (45.6 - 52.0 VDC)         | 2'500 mA            | 93 %            |

### Options

|             |                                                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------|
| TXH 120-COV | - Optional Cover: <a href="http://www.tracopower.com/products/txh120-cov.pdf">www.tracopower.com/products/txh120-cov.pdf</a> |
|-------------|------------------------------------------------------------------------------------------------------------------------------|

## Input Specifications

|                        |                             |                                                                                                         |
|------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------|
| Input Voltage          | - AC Range                  | Operational Range: <b>90 - 264 VAC</b> (Full Range)<br>Rated Range: <b>100 - 240 VAC</b> (Full Range)   |
|                        | - DC Range                  | Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification)<br>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>1'000 mA max.</b>                                                                                    |
|                        | - Full Load & Vin = 115 VAC | <b>2'000 mA max.</b>                                                                                    |
| Power Consumption      | - No load & Vin = 230 VAC   | <b>2'000 mW max.</b>                                                                                    |
|                        | - No load & Vin = 115 VAC   | <b>2'000 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>0.99 min.</b> (Active Power Factor Correction)                                                       |
| Recommended Input Fuse |                             | (The need of an external fuse has to be assessed in the final application.)                             |

## Output Specifications

|                                        |                                 |                                                                      |
|----------------------------------------|---------------------------------|----------------------------------------------------------------------|
| Output Voltage Adjustment              |                                 | 12 VDC model: <b>11.4 - 13.2 VDC</b>                                 |
|                                        |                                 | 24 VDC model: <b>22.8 - 26.4 VDC</b>                                 |
|                                        |                                 | 48 VDC model: <b>45.6 - 52.0 VDC</b>                                 |
|                                        |                                 | (By trim potentiometer)<br>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<br>(20 MHz Bandwidth) | 12 VDC model:                   | <b>50 mVp-p max.</b> (w/ 0.1 µF // 47 µF)                            |
|                                        | 24 VDC model:                   | <b>100 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>40'000 µF max.</b>                                                |
|                                        | 24 VDC model:                   | <b>20'000 µF max.</b>                                                |
|                                        | 48 VDC model:                   | <b>1'200 µF max.</b>                                                 |
| Minimum Load                           |                                 | <b>1 % of Iout max.</b>                                              |
| Temperature Coefficient                |                                 | <b>±0.03 %/K max.</b>                                                |
| Hold-up Time                           | - At 230 VAC                    | <b>20 ms min.</b>                                                    |
|                                        | - At 115 VAC                    | <b>15 ms min.</b>                                                    |
| Start-up Time                          | - At 230 VAC                    | <b>650 ms max.</b>                                                   |
|                                        | - At 115 VAC                    | <b>350 ms max.</b>                                                   |
| Short Circuit Protection               |                                 | <b>Automatic recovery</b>                                            |
| Output Current Limitation              |                                 | <b>120 - 240% of Iout max.</b>                                       |
| Overvoltage Protection                 |                                 | <b>105 - 145% of Vout nom.</b>                                       |
| 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<br>EN 62368-1<br>IEC 60950-1<br>IEC 62368-1<br>UL 60950-1<br>UL 62368-1         |
|                  | - Certification Documents   | <a href="http://www.tracopower.com/overview/txh120">www.tracopower.com/overview/txh120</a> |
| Protection Class |                             | <b>Class I (Prepared): Connection to PE</b>                                                |

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

|                       |        |
|-----------------------|--------|
| Pollution Degree      | PD 2   |
| Over Voltage Category | OVC II |

## EMC Specifications

|                                  |                  |                                            |
|----------------------------------|------------------|--------------------------------------------|
| <b>EMI Emissions</b>             |                  | EN 61000-6-3 (Generic Residential)         |
| - 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                               |
| <b>EMS Immunity</b>              |                  | EN 55024 (IT Equipment)                    |
| - 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            | L to L:          | EN 61000-4-4, $\pm 1$ 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: | EN 61000-4-11                              |
|                                  |                  | 30%, 25 periods, perf. criteria C          |
|                                  |                  | >95%, 0.5 periods, perf. criteria B        |
|                                  |                  | >95%, 25 periods, perf. criteria C         |

## General Specifications

|                                  |                       |                                                                                            |
|----------------------------------|-----------------------|--------------------------------------------------------------------------------------------|
| <b>Relative Humidity</b>         |                       | 95% max. (non condensing)                                                                  |
| <b>Temperature Ranges</b>        |                       | -25°C to +70°C                                                                             |
| - Operating Temperature          |                       | -25°C to +85°C                                                                             |
| - Storage Temperature            |                       |                                                                                            |
| <b>Power Derating</b>            |                       | 3 %/K above 50°C                                                                           |
| - High Temperature               |                       |                                                                                            |
| - Low Input Voltage              | See application note: | <a href="http://www.tracopower.com/overview/txh120">www.tracopower.com/overview/txh120</a> |
| <b>Cooling System</b>            |                       | Natural convection (20 LFM)                                                                |
| <b>Altitude During Operation</b> |                       | 4'000 m max.                                                                               |
| <b>Switching Frequency</b>       |                       | 90 - 200 kHz (PWM)                                                                         |
|                                  |                       | 100 kHz typ. (PWM)                                                                         |
| <b>Insulation System</b>         |                       | Reinforced Insulation                                                                      |
| <b>Working Voltage (rated)</b>   |                       | 279 VAC                                                                                    |
| <b>Isolation Test Voltage</b>    |                       | 4'000 VAC                                                                                  |
| - Input to Output, 60 s          |                       | 2'000 VAC                                                                                  |
| - Input to Case or PE, 60 s      |                       | 500 VAC                                                                                    |
| - Output to Case or PE, 60 s     |                       |                                                                                            |
| <b>Creepage</b>                  | - Input to Output     | 4.8 mm min.                                                                                |
| <b>Clearance</b>                 | - Input to Output     | 4 mm min.                                                                                  |
| <b>Leakage Current</b>           |                       | 600 $\mu$ A max.                                                                           |
| - Earth Leakage Current          |                       | 500 $\mu$ A max.                                                                           |
| - Touch Current                  |                       |                                                                                            |
| <b>Reliability</b>               | - Calculated MTBF     | 120'000 h (MIL-HDBK-217F, ground benign)                                                   |
| <b>Environment</b>               | - Vibration           | 2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle                                               |
| <b>Housing Type</b>              |                       | U-Bracket                                                                                  |
| <b>Mounting Type</b>             |                       | Chassis Mount                                                                              |
| <b>Connection Type</b>           |                       | Screw Terminal                                                                             |
| <b>Weight</b>                    |                       | 382 g                                                                                      |

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

Environmental Compliance - REACH Declaration

[www.tracopower.com/info/reach-declaration.pdf](http://www.tracopower.com/info/reach-declaration.pdf)

REACH SVHC list compliant

REACH Annex XVII compliant

[www.tracopower.com/info/rohs-declaration.pdf](http://www.tracopower.com/info/rohs-declaration.pdf)

- RoHS Declaration

Exemptions: 7a, 7c-I

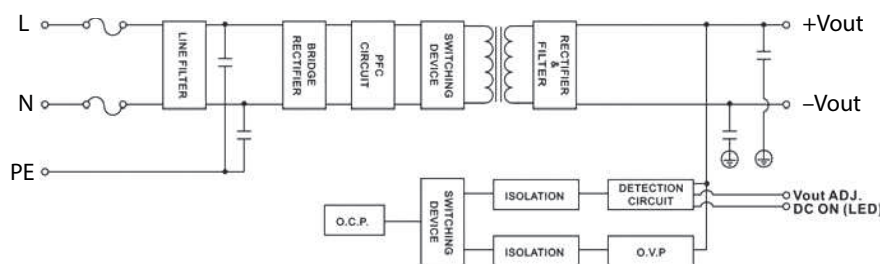
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (05A rule).  
The SCIP number is provided on request.)

## Supporting Documents

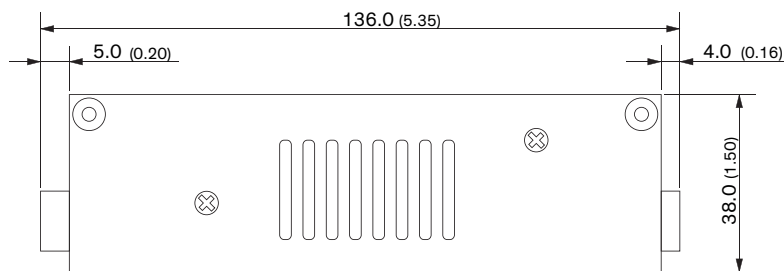
Overview Link (for additional Documents)

[www.tracopower.com/overview/txh120](http://www.tracopower.com/overview/txh120)

## Blockdiagram

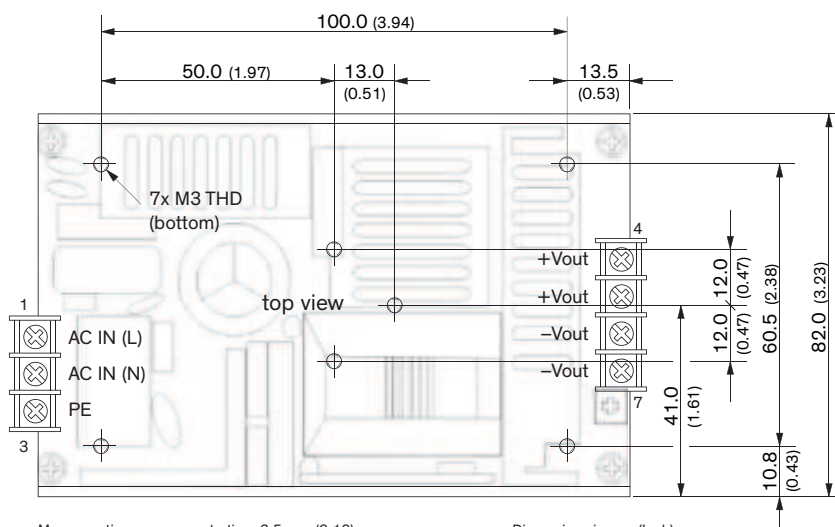


## Outline Dimensions



### Pin Connections

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



Max mounting screw penetration: 2.5 mm (0.10)

Dimensions in mm (Inch)  
Tolerances:  $\pm 0.8$  mm ( $\pm 0.03$ )  
Mounting hole pitch tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )