## III TRACO POWER

## AC/DC Power Supply

- Compact chassis mount power module in 2.17" $x$ 1.70" package
- Wide input voltage range 90-305 VAC
- Certified according to EN 60335-1 an IEC/EN/UL 62368-1
- I/O-Isolation 4'000 VAC
- Operating temperature range $-40^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$
- No load input power <0.1W (acc. ErP directive)
- High efficiency up to $83 \%$
- Internal EN 55032 class B filter
- Protection class II prepared
- 3-year product warranty


UL 62368-1 IEC 60335-1 IEC 62368-1

The TMPW $5-\mathrm{T}$ is a 5 Watt AC/DC series with an extended input range of 90-305 VAC and is suitable for industrial and household/building technology applications and comes in a compact encapsulated plastic case. The 305 VAC ( 277 VAC $\pm 10 \%$ ) threshold is derived from a 480 VAC three-phase supply voltage often used in heavy industrial applications. Through the increased voltage level, the drawn current from the load is effectively reduced, which allows for an overall more compact and lightweight design approach. They offer an I/O-isolation voltage of 4000 VAC, a high temperature range of -40 to $+70^{\circ} \mathrm{C}$ and are prepared for protection class II applications. Additionally, an internal EN 55032 class B filter saves valuable board space for an otherwise often mandatory external filter setup. An energy efficient design (<0.1 Watt standby power consumption) and safety approvals according to IEC/EN/UL 62368-1 and EN 60335-1 make this series suitable for a wide range of industrial and household/building technology applications.

## Models

| Order Code |  | Output Power max. | Output Voltage nom. | Output Current max. | Efficiency typ. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Screw terminals | JST connectors * |  |  |  |  |
| TMPW 5-103-T | TMPW 5-103-J |  | 3.3 VDC | 1'515 mA | 73 \% |
| TMPW 5-105-T | TMPW 5-105-J |  | 5 VDC | 1.000 mA | 77 \% |
| TMPW 5-112-T | TMPW 5-112-J | 5 W | 12 VDC | 420 mA | 81 \% |
| TMPW 5-124-T | TMPW 5-124-J |  | 24 VDC | 210 mA | 83 \% |

## Options

TMPW-MK1 - Optional DIN-Rail Mounting Kit: www.tracopower.com/products/tmpw-mk1.pdf
Note - *Technically identical series with JST connectors available. See: www.tracopower.com/overview/tmpw5-j

Input Specifications

| Input Voltage | - AC Range <br> - DC Range | Operational Range: 90-305 VAC (Full Range) <br> Rated Range: 100-277 VAC (Full Range) <br> Operational Range: 100-430 VDC <br> Certified Range: 100-250 VDC <br> Polarity: irrelevant <br> (The rated range refers to 62368-1. For 60335-1 certification the rated input voltage is $100-240$ VAC and DC input is not permitted.) |
| :---: | :---: | :---: |
| Input Frequency |  | $\begin{aligned} \text { Operational Range: } & 47-440 \mathrm{~Hz} \\ \text { Certified: } & 50 / 60 \mathrm{~Hz}\end{aligned}$ |
| Power Consumption | - No load \& Vin $=230$ VAC <br> - No load \& Vin $=115$ VAC | 100 mW max. (Ready to meet ErP directive) 100 mW max. |
| Input Current | - Full load \& Vin $=230$ VAC <br> - Full load \& Vin $=115$ VAC | 90 mA max. 150 mA max. |
| Input Inrush Current | - At 230 VAC <br> - At 115 VAC | 60 A max. 30 A max. |
| Recommended Input Fuse |  | 1 ' 600 mA (slow blow) <br> (The need of an external fuse has to be assessed in the final application.) |
| Output Specifications |  |  |
| Voltage Set Accuracy |  | $\pm 2 \%$ max. |
| Regulation | - Input Variation (Vmin - Vmax) <br> - Load Variation (0-100\%) | $0.2 \%$ max. (3.3 \& 5 Vout models) 0.1 \% max. (other models) 1\% max. (3.3 Vout model) 0.5 \% max. (other models) |
| Ripple and Noise (20 MHz Bandwidth) |  |  |
| Capacitive Load |  | $\begin{aligned} & \text { 3.3 VDC model: } 3^{\prime} 500 \mu \mathrm{~F} \text { max. } \\ & 5 \text { VDC model: } 2 \text { ' } 500 \mu \mathrm{~F} \text { max. } \\ & 12 \text { VDC model: } 470 \mu \mathrm{~F} \text { max. } \\ & 24 \text { VDC model: } 150 \mu \mathrm{~F} \text { max. } \end{aligned}$ |
| Minimum Load |  | Not required |
| Temperature Coefficient |  | $\pm 0.02$ \%/K max. |
| Hold-up Time | - At 230 VAC | 15 ms min . |
| Start-up Time | $\begin{aligned} & \text { - At } 230 \mathrm{VAC} \\ & \text { - At } 115 \mathrm{VAC} \end{aligned}$ | 60 ms max. 60 ms max. |
| Short Circuit Protection |  | Continuous, Automatic recovery |
| Output Current Limitation |  | 115-195\% of lout max. |
| Overvoltage Protection |  | 105-145\% of Vout nom. <br> (By Zener diode) |
| Transient Response | - Response Deviation <br> - Response Time | 2\% typ. / 3\% max. (50\% to 75\% Load Step) $500 \mu$ s max. (50\% to 75\% Load Step) |

Safety Specifications

| Standards | - IT / Multimedia Equipment <br> - Household <br> - Power Transformers <br> - Certification Documents |  | EN 62368-1 <br> IEC 62368-1 <br> UL 62368-1 <br> EN 60335-1 <br> IEC 60335-1 <br> IEC 61558-1 <br> IEC 61558-2-16 <br> www.tracopower.com/overview/tmpw5-t |
| :---: | :---: | :---: | :---: |
| Protection Class |  |  | Class I \& II (Prepared): Reinforced Insulation |
| Pollution Degree |  |  | PD 2 |
| Over Voltage Category |  |  | OVC II |
| EMC Specifications |  |  |  |
| EMI Emissions | - Conducted Emissions <br> - Radiated Emissions <br> - Harmonic Current Emissions <br> - Voltage Fluctuations \& Flicker |  | EN 55032 class B (internal filter) <br> EN 55032 class B (internal filter) <br> EN 61000-3-2, class A <br> EN 61000-3-3 |
| EMS Immunity | - Electrostatic Discharge <br> - RF Electromagnetic Field <br> - EFT (Burst) / Surge <br> - Conducted RF Disturbances <br> - PF Magnetic Field <br> - Voltage Dips \& Interruptions | Air: <br> Contact: <br> L to L: <br> Continuous: 230 VAC / 50 Hz: <br> 115 VAC / 60 Hz: | EN 61000-6-2 <br> EN 55024 <br> EN 55035 <br> EN 61000-4-2, $\pm 8$ kV, perf. criteria A <br> EN 61000-4-2, $\pm 4 \mathrm{kV}$, perf. criteria A <br> EN 61000-4-3, $10 \mathrm{~V} / \mathrm{m}$, perf. criteria A <br> EN 61000-4-4, $\pm 1 \mathrm{kV}$, perf. criteria A <br> EN 61000-4-5, $\pm 2 \mathrm{kV}$, perf. criteria A <br> EN 61000-4-6, 10 Vrms, perf. criteria A <br> EN 61000-4-8, $30 \mathrm{~A} / \mathrm{m}$, perf. criteria A <br> EN 61000-4-11 <br> $30 \%$, 25 periods, perf. criteria A <br> $60 \%, 10$ periods, perf. criteria B <br> $>95 \%, 0.5$ periods, perf. criteria A <br> $>95 \%, 250$ periods, perf. criteria B <br> $100 \%$, 1 period, perf. criteria A <br> $100 \%$, 250 periods, perf. criteria B <br> EN 61000-4-11 <br> $30 \%, 25$ periods, perf. criteria A <br> $60 \%, 10$ periods, perf. criteria B <br> $>95 \%, 0.5$ periods, perf. criteria A <br> $>95 \%$, 250 periods, perf. criteria B <br> $100 \%, 1$ period, perf. criteria A <br> $100 \%, 250$ periods, perf. criteria B |
| General Specifications |  |  |  |
| Relative Humidity |  |  | 95\% max. (non condensing) |
| Temperature Ranges | - Operating Temperature <br> - Storage Temperature |  | $\begin{aligned} & -40^{\circ} \mathrm{C} \text { to }+70^{\circ} \mathrm{C} \\ & -40^{\circ} \mathrm{C} \text { to }+85^{\circ} \mathrm{C} \end{aligned}$ |
| Power Derating | - High Temperature | See application note | $2.5 \% / \mathrm{K}$ above $50^{\circ} \mathrm{C}$ (High Temperature) 2.0 \%/K below $-30^{\circ} \mathrm{C}$ (Low Temperature) www.tracopower.com/overview/tmpw5-t |
| Cooling System |  |  | Natural convection (20 LFM) |
| Altitude During Operation |  |  | $\begin{aligned} & \text { 5'000 m max. (acc. IEC 62368-1) } \\ & \text { 2'000 m max. (acc. IEC 60335-1) } \end{aligned}$ |
| Switching Frequency |  |  | $60-150 \mathrm{kHz}$ (PWM, PFM) |
| Insulation System |  |  | Reinforced Insulation |
| Working Voltage (rated) |  |  | 314 VAC |
| Isolation Test Voltage | - Input to Output, 60 s |  | 4'000 VAC |

[^0]| Leakage Current | - Touch Current | $250 \mu \mathrm{~A}$ max. |
| :---: | :---: | :---: |
| Reliability | - Calculated MTBF | 450'000 h (MIL-HDBK-217F, ground benign) |
| Environment | - Vibration | IEC 60068-2-6 |
|  |  | $2 \mathrm{~g}, 3 \mathrm{axis}, 60 \mathrm{~min}, 10-500 \mathrm{~Hz}, 10 \mathrm{~min} /$ cycle |
|  | - Mechanical Shock | IEC 60068-2-27 |
| Housing Material |  | Plastic resin (UL 94 V-0 rated) |
| Potting Material |  | Silicone (UL 94 V-0 rated) |
| Housing Type |  | Plastic Case |
| Mounting Type |  | Chassis Mount |
| Connection Type |  | Screw Terminal |
| Weight |  | 60 g |
| Environmental Compliance | - REACH Declaration | www.tracopower.com/info/reach-declaration.pdf |
|  |  | REACH SVHC list compliant |
|  | - RoHS Declaration | REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf |
|  |  | Exemptions: 7c-I <br> (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) |
|  | - SCIP Reference Number | 2850f896-dd56-4b18-a98b-adadb4b5a6dc |

## Supporting Documents

## Outline Dimensions





[^0]:    All specifications valid at nominal voltage, resistive full load and $+25^{\circ} \mathrm{C}$ after warm-up time, unless otherwise stated.

