

AC/DC Power Supply**TMPW 5 Series, 5 Watt**

- Compact PCB power module in 1.46" x 1.08" package
- Wide input voltage range 90-305 VAC
- Certified according to EN 60335-1 and IEC/EN/UL 62368-1
- I/O-Isolation 4'000 VAC
- Operating temperature range -40°C to +70°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 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°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.
TMPW 5-103		3.3 VDC	1'515 mA	73 %
TMPW 5-105		5 VDC	1'000 mA	77 %
TMPW 5-112	5 W	12 VDC	420 mA	81 %
TMPW 5-124		24 VDC	210 mA	83 %

Input Specifications

Input Voltage	- AC Range	Operational Range: 90 - 305 VAC (Full Range)
	- DC Range	Rated Range: 100 - 277 VAC (Full Range)
		Operational Range: 100 - 430 VDC
		Certified Range: 100 - 250 VDC
		Polarity: irrelevant
		(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		47 - 63 Hz (designed to meet: 47 - 440 Hz)
Input Current	- Full Load & Vin = 230 VAC	90 mA max.
	- Full Load & Vin = 115 VAC	150 mA max.
Power Consumption	- At no load	100 mW max. (Ready to meet ErP directive)
Input Inrush Current	- At 230 VAC	60 A max.
	- At 115 VAC	30 A max.
Recommended Input Fuse		1'600 mA (slow blow)
		(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax)	0.2% max. (3.3 & 5 Vout models)
	- Load Variation (0 - 100%)	0.1 % max. (other models)
		1% max. (3.3 Vout model)
		0.5 % max. (other models)
Ripple and Noise (20 MHz Bandwidth)	3.3 VDC model:	60 mVp-p max. (w/ 0.1 µF // 47 µF)
	5 VDC model:	60 mVp-p max. (w/ 0.1 µF // 47 µF)
	12 VDC model:	120 mVp-p max. (w/ 0.1 µF // 47 µF)
	24 VDC model:	200 mVp-p max. (w/ 0.1 µF // 47 µF)
Capacitive Load	3.3 VDC model:	3'500 µF max.
	5 VDC model:	2'500 µF max.
	12 VDC model:	470 µF max.
	24 VDC model:	150 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Hold-up Time	- At 230 VAC	15 ms min.
Start-up Time	- At 230 VAC	60 ms max.
	- At 115 VAC	60 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		115 - 195% of Iout max.
Overshoot Protection		105 - 145% of Vout nom. (By Zener diode)
Transient Response	- Response Deviation	2% typ. / 3% max. (50% to 75% Load Step)
	- Response Time	500 µs max. (50% to 75% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1
	- Household	IEC 62368-1
	- Power Transformers	UL 62368-1
	- Certification Documents	EN 60335-1
		IEC 60335-1
		IEC 61558-1
		IEC 61558-2-16
		www.tracopower.com/overview/tmpw5
Protection Class		Class I & II (Prepared): Reinforced Insulation

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

EMI Emissions	- Conducted Emissions - Radiated Emissions - Voltage Fluctuations & Flicker	EN 55032 class B (internal filter) EN 55032 class B (internal filter) 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
	- RF Electromagnetic Field	Contact: EN 61000-4-2, ± 4 kV, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-3, 3 V/m, perf. criteria A
	- Conducted RF Disturbances	EN 61000-4-4, ± 1 kV, perf. criteria A
	- PF Magnetic Field	L to L: EN 61000-4-5, ± 1 kV, perf. criteria A
	- Voltage Dips & Interruptions	EN 61000-4-6, 3 Vrms, perf. criteria A
		Continuous: EN 61000-4-8, 1 A/m, perf. criteria A
		230 VAC / 50 Hz: EN 61000-4-11
		30%, 25 periods, perf. criteria A
		>95%, 250 periods, perf. criteria B
		115 VAC / 60 Hz: EN 61000-4-11
		30%, 25 periods, perf. criteria A
		>95%, 250 periods, perf. criteria B

General Specifications

Relative Humidity	95% max. (non condensing)
Temperature Ranges	-40°C to +70°C
	-40°C to +85°C
Power Derating	2.5 %/K above 50°C (High Temperature) 2.0 %/K below -30°C (Low Temperature)
Cooling System	Natural convection (20 LFM)
Altitude During Operation	5'000 m max. (acc. IEC 62368-1) 2'000 m max. (acc. IEC 60335-1)
Switching Frequency	60 - 150 kHz (PWM, PFM)
Insulation System	Reinforced Insulation
Working Voltage (rated)	314 VAC
Isolation Test Voltage	4'000 VAC
Leakage Current	250 μ A max.
Reliability	450'000 h (MIL-HDBK-217F, ground benign)
Washing Process	Not allowed
Environment	- Vibration IEC 60068-2-6 2 g, 3 axis, 60 min, 10-500 Hz, 10 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) (Hermetical sealed structure, dust-proof only non water-proof)
Pin Material	Brass
Pin Surface Plating	Tin (120 μ m min.), matte
Housing Type	Plastic Case
Mounting Type	PCB Mount
Connection Type	THD (Through-Hole Device)
Weight	24 g

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

Environmental Compliance - REACH Declaration

- RoHS Declaration

www.tracopower.com/info/reach-declaration.pdf

REACH SVHC list compliant

REACH Annex XVII compliant

www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7c-l

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)