

AC/DC Power Supply**TMPW 50 Series, 50 Watt**

- Compact PCB power module in 2.92" x 1.85" 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 89%
- 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 50 is a 50 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 50-112		12 VDC	4'167 mA	89 %
TMPW 50-115	50 W	15 VDC	3'333 mA	88 %
TMPW 50-124		24 VDC	2'083 mA	88 %

Input Specifications

Input Voltage	- AC Range	Operational Range: 90 - 305 VAC (Full Range) Rated Range: 100 - 277 VAC (Full Range)
	- DC 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 - Full Load & Vin = 115 VAC	600 mA max. 1'000 mA max.
Power Consumption	- At no load	100 mW max. (Ready to meet ErP directive)
Input Inrush Current	- At 230 VAC - At 115 VAC	90 A max. 45 A max.
Recommended Input Fuse		2'500 mA (slow blow) (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)	2% max.
	- Load Variation (0 - 100%)	2.5% max.
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	120 mVp-p max. (w/ 0.1 μ F // 47 μ F)
	15 VDC model:	150 mVp-p max. (w/ 0.1 μ F // 47 μ F)
	24 VDC model:	240 mVp-p max. (w/ 0.1 μ F // 47 μ F)
Capacitive Load	12 VDC model:	3'500 μ F max.
	15 VDC model:	3'000 μ F max.
	24 VDC model:	2'200 μ F max.
Minimum Load	Not required	
Temperature Coefficient	$\pm 0.05\%$ /K max.	
Hold-up Time	- At 230 VAC	10 ms min.
Start-up Time	- At 230 VAC - At 115 VAC	130 ms max. 130 ms max.
Short Circuit Protection	Continuous, Automatic recovery	
Output Current Limitation	130 - 215% of Iout max.	
Oversupply Protection	105 - 145% of Vout nom. (By Zener diode)	
Transient Response	- Response Deviation - Response Time	2% typ. / 3% max. (50% to 75% Load Step) 500 μ s max. (50% to 75% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Household	EN 60335-1 IEC 60335-1
	- Power Transformers	IEC 61558-1 IEC 61558-2-16
	- Certification Documents	www.tracopower.com/overview/tmpw50
Protection Class	Class I & II (Prepared): Reinforced Insulation	
Pollution Degree	PD 2	
Over Voltage Category	OVC II	

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

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
	2 %/V below 100 VAC
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	55 - 90 kHz (PWM, PFM)
Insulation System	Reinforced Insulation
Working Voltage (rated)	342 VAC
Isolation Test Voltage	4'000 VAC
Leakage Current	250 μ A max.
Reliability	300'000 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	158 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

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.)

- RoHS Declaration

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tmpw50

Outline Dimensions

