

- Fully encapsulated, dust resistant, and waterproof (IP68 certified)
- Operating temperature range -20° to +80°C
- Mountable in wall outlet boxes
- Screw mountable on wood and inside furniture
- Safety approval IEC/EN 62368-1 and IEC/EN 60335-1
- 2xMOPP certified according to IEC/EN 60601-1 3rd edition
- Leakage current < 100 µA for body-floating (BF) applications
- I/O isolation 4000 VAC (reinforced)
- Short-circuit protection (SCP), overvoltage protection (OVP) and overtemperature protection (OTP)
- 5-year product warranty



The TMW 36P is a series of fully encapsulated AC/DC power supplies designed for medical, household, and industrial applications. All models come in compact, dust resistant, and waterproof IP68 housings, are IEC/EN 62368-1, IEC/EN 60335-1 and IEC/EN 60601-1 3rd edition compliant and are certified for 2xMOPP. Featuring a reinforced isolation, the TMW 36P power supplies are prepared for protection class II applications. Their wide operating temperature range from -20°C to +80°C makes them ideal candidates for demanding applications.

Models				
Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Efficiency typ.
TMW 36-112P	36 W	12 VDC	3 A	87 %
TMW 36-124P		24 VDC	1.5 A	88 %

Input Specifications

Input Voltage		Operational Range: 85 - 264 VAC (Full Range) Rated Range: 100 - 240 VAC (Full Range)
Input Frequency		47 - 63 Hz
Power Consumption	- At no load	200 mW max. (Ready to meet ErP directive)
Input Inrush Current	- At 230 VAC - At 115 VAC	50 A max. 25 A max.
Power Factor	- At 230 VAC - At 115 VAC	0.45 min. 0.55 min.
Input Protection		T 2 A (Internal Fuse)
Recommended Input Fuse		(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) - Load Variation (10 - 90%)	0.5% max. 1% max.
Ripple and Noise (20 MHz Bandwidth)		195 mVp-p max.
Capacitive Load		10'000 µF max.
Minimum Load		Not required
Temperature Coefficient		±2 %/K max.
Hold-up Time	- At 230 VAC - At 115 VAC	40 ms min. 7 ms min.
Start-up Time	- At 230 VAC - At 115 VAC	500 ms max. 500 ms max.
Start-up Overshoot Voltage		5% max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		105 - 150% of Iout max.
Overvoltage Protection		130% typ. of Vout nom. 120 - 160% of Vout nom.
Transient Response	- Response Deviation - Response Time	5% max. (10% to 90% Load Step) 2'000 µs max. (10% to 90% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment - Household - Medical Equipment - LED Modules Controlgear - Luminaires for Furniture - Power Transformers - Certification Documents	EN 62368-1 IEC 62368-1 EN 60335-1 IEC 60335-1 EN 60601-1 IEC 60601-1 ANSI/AAMI ES 60601-1 CSA-C22.2, No 60601-1 2 x MOPP (Means Of Patient Protection) EN 61347-2-13 VDE 0710-14 EN 61558-1 IEC 61558-1 EN 61558-2-8 IEC 61558-2-8 EN 61558-2-16 IEC 61558-2-16 www.tracopower.com/overview/tmw36p
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		EN 61000-6-3 (Generic Residential) EN 61204-3 (Low Voltage Power Supplies) EN 55011 class B (internal filter) EN 55032 class B (internal filter) EN 55011 class B (internal filter) EN 55032 class B (internal filter) EN 61000-3-2, class A
- Conducted Emissions		
- Radiated Emissions		
- Harmonic Current Emissions		
EMS Immunity		EN 61000-6-2 (Generic Industrial) EN 60601-1-2 edition 4 (Medical Devices) EN 61000-4-3, 10 V/m, perf. criteria A EN 61000-4-4, ± 2 kV, perf. criteria A L to L: EN 61000-4-5, ± 1 kV, perf. criteria A EN 61000-4-6, 10 Vrms, perf. criteria A Continuous: EN 61000-4-8, 30 A/m, perf. criteria A 230 VAC / 50 Hz: EN 61000-4-11 20%, 250 periods, perf. criteria A 30%, 25 periods, perf. criteria A 60%, 10 periods, perf. criteria A >95%, 5 periods, perf. criteria B >95%, 250 periods, perf. criteria B 115 VAC / 60 Hz: EN 61000-4-11 20%, 250 periods, perf. criteria A 30%, 25 periods, perf. criteria B 60%, 10 periods, perf. criteria B >95%, 5 periods, perf. criteria B >95%, 250 periods, perf. criteria B
- RF Electromagnetic Field		
- EFT (Burst) / Surge		
- Conducted RF Disturbances		
- PF Magnetic Field		
- Voltage Dips & Interruptions		

General Specifications

Relative Humidity		100% max.
Temperature Ranges	- Operating Temperature	-20°C to +80°C
	- Storage Temperature	-40°C to +90°C
Power Derating	- High Temperature	2 %/K above 50°C (at $V_{in} \geq 187$ VAC) 2 %/K above 40°C (at $V_{in} < 187$ VAC)
	- Low Input Voltage	2 %/V below 100 VAC
	- Protection Mode	85°C min. / 90°C typ. / 95°C max. (Automatic recovery)
Over Temperature Protection Switch Off		Case
Cooling System		Natural convection (20 LFM)
Altitude During Operation		5'000 m max. (4'000 m max. for IEC 61558-2-8)
Switching Frequency		25 - 140 kHz (PWM QR)
Insulation System		Reinforced Insulation
Isolation Test Voltage	- Input to Output, 60 s	4'000 VAC
	- Input to Output, 1 s	4'000 VAC
Creepage	- Input to Output	8 mm min.
Clearance	- Input to Output	8 mm min.
Isolation Resistance	- Input to Output, 500 VDC	100 M Ω min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	1'100 pF typ. / 1'300 pF max.
Leakage Current (at 240 VAC / 60 Hz)	- Touch Current	100 μ A max.
Reliability	- Calculated MTBF	3'400'000 h (see application note) (IEC 61709)

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Environment	- Vibration	IEC 60068-2-6 3 g, 3 axis, sine sweep, 10-55 Hz, 1 oct/min
	- Mechanical Shock	IEC 60068-2-27 25 g, 3 axis, half sine, 11 ms
Case Ingress Protection		IP68 (acc. IEC 60529)
Housing Material		Plastic (UL 94 V-0 rated)
Potting Material		Epoxy (UL 94 V-0 rated)
Pin Material		Brass (Alloy 360/385)
Pin Surface Plating		Tin (200 - 300 µm), matte
Housing Type		Plastic Case
Mounting Type		PCB Mount
Connection Type		THD (Through-Hole Device)
Weight	- single output	12 VDC model: 143 g
		24 VDC model: 145 g
Power Back Immunity		12 VDC model: 15 V max.
		24 VDC model: 30 V max.
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: 6a, 6c, 7a, 7c-I, 7c-II (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.)

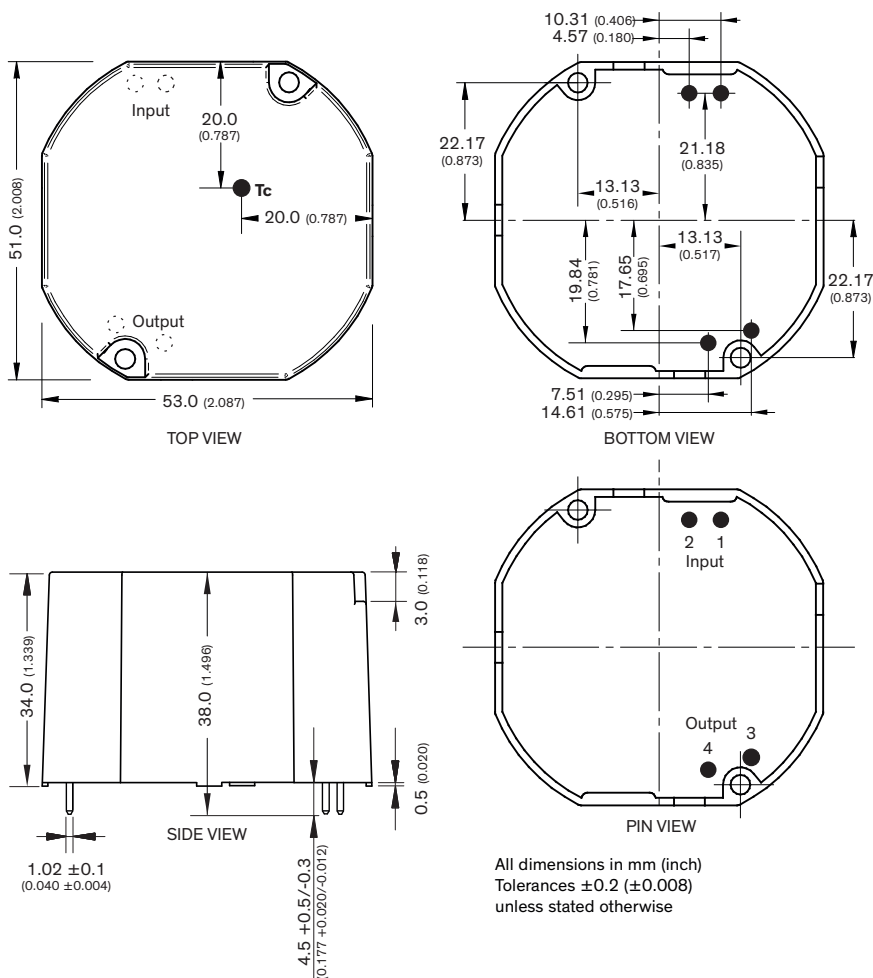
Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tmw36p

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Outline Dimensions



Pinout

Pin	Function
1	AC (N)
2	AC (L)
3	- Vout
4	+ Vout