

- Fully encapsulated power supplies in plastic casing for PCB mount
- Fully regulated outputs
- 3000 VAC I/O-isolation
- High efficiency up to 80%
- Universal input range 90 to 264 VAC
- Operating temperature range: -40°C to +70°C max.
- Safety class II prepared
- Short circuit over power and over voltage limitation
- 3-year product warranty



TMG 07 Series AC/DC power modules come in fully encapsulated plastic package. They are ultra-compact, energy-efficient and cost/performance optimised for prevailing market requirements. The high efficiency and the use of high grade components make these modules suitable for an operating temperature range of -40°C to +70°C. Together with very low no-load power consumption they are suitable for applications conforming with the ErP directive. The modules are protected against short-circuit and over voltage. EMI/EMC characteristics and the safety approval package qualify them for demanding applications in equipment for industrial or commercial environments.

Models				
Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Efficiency typ.
TMG 07105	6.3 W	5 VDC	1'260 mA	77 %
TMG 07112	7 W	12 VDC	583 mA	80 %
TMG 07115		15 VDC	466 mA	80 %
TMG 07124		24 VDC	292 mA	80 %

### Input Specifications

Input Voltage	- AC Range	Operational Range: <b>90 - 264 VAC</b> (Full Range) Rated Range: <b>100 - 240 VAC</b> (Full Range)
	- DC Range	Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification) Polarity: <b>+DC: N / -DC: L</b>
Input Frequency		Operational Range: <b>47 - 440 Hz</b> Certified: <b>50/60 Hz</b>
Power Consumption	- No load & Vin = 230 VAC - No load & Vin = 115 VAC	<b>100 mW max.</b> (Ready to meet ErP directive) <b>100 mW max.</b>
Input Current	- Full load & Vin = 230 VAC - Full load & Vin = 115 VAC	<b>110 mA max.</b> <b>180 mA max.</b>
Input Inrush Current	- At 230 VAC - At 115 VAC	<b>40 A max.</b> <b>20 A max.</b> (For the 7 & 15 W models an external Thermistor has to be integrated in the circuit at the converter input L in series. Thermistor recommendation: 10R / 15z)
Recommended Input Fuse		<b>2'000 mA</b> (slow blow) (The need of an external fuse has to be assessed in the final application.)

### Output Specifications

Voltage Set Accuracy		<b>±2% max.</b>
Regulation	- Input Variation (Vmin - Vmax) - Load Variation (10 - 100%)	<b>0.5% max.</b> <b>1% max.</b>
Ripple and Noise (20 MHz Bandwidth)		5 VDC model: <b>120 mVp-p max.</b> (w/ 0.1 µF    47 µF) 12 VDC model: <b>120 mVp-p max.</b> (w/ 0.1 µF    47 µF) 15 VDC model: <b>150 mVp-p max.</b> (w/ 0.1 µF    47 µF) 24 VDC model: <b>240 mVp-p max.</b> (w/ 0.1 µF    47 µF)
Capacitive Load		5 VDC model: <b>3'300 µF max.</b> 12 VDC model: <b>1'000 µF max.</b> 15 VDC model: <b>470 µF max.</b> 24 VDC model: <b>68 µF max.</b>
Minimum Load		<b>Not required</b>
Temperature Coefficient		<b>±0.02 %/K max.</b>
Hold-up Time	- At 230 VAC - At 115 VAC	<b>30 ms min.</b> <b>5 ms min.</b>
Start-up Time	- At 230 VAC - At 115 VAC	<b>100 ms max.</b> <b>120 ms max.</b>
Short Circuit Protection		<b>Continuous, Automatic recovery</b>
Output Current Limitation		<b>134 - 203% of Iout max.</b>
Transient Response	- Response Deviation - Response Time	<b>2% max.</b> (75% to 100% Load Step) <b>500 µs typ.</b> (75% to 100% Load Step)

### Safety Specifications

Standards	- IT / Multimedia Equipment  - Certification Documents	EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1 <a href="http://www.tracopower.com/overview/tmg07">www.tracopower.com/overview/tmg07</a>
Protection Class		<b>Class I &amp; II (Prepared): Reinforced Insulation</b>
Pollution Degree		<b>PD 2</b>
Over Voltage Category		<b>OVC II</b>

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

## EMC Specifications

EMI (Emissions)	- Conducted Emissions - Radiated Emissions	EN 55032 class B (internal filter) EN 55032 class B (internal filter)
EMS (Immunity)	- Electrostatic Discharge  - RF Electromagnetic Field - EFT (Burst) / Surge  - Conducted RF Disturbances - PF Magnetic Field - Voltage Dips & Interruptions	EN 55024 (IT Equipment) EN 55035 (Multimedia) Air: EN 61000-4-2, $\pm 8$ kV, perf. criteria A Contact: EN 61000-4-2, $\pm 4$ kV, perf. criteria A EN 61000-4-3, 10 V/m, perf. criteria A EN 61000-4-4, $\pm 2$ kV, perf. criteria A L to L: EN 61000-4-5, $\pm 1$ kV, perf. criteria A Ext. input component: Use an external Varistor at the converter input (in parallel). Recommendation: 14S471K EN 61000-4-6, 10 Vrms, perf. criteria A Continuous: EN 61000-4-8, 30 A/m, perf. criteria A 230 VAC / 50 Hz: 30%, 25 periods, perf. criteria A >95%, 0.5 periods, perf. criteria A 115 VAC / 60 Hz: 30%, 25 periods, perf. criteria A >95%, 0.5 periods, perf. criteria A
EMC / Environmental	- Certification Documents	<a href="http://www.tracopower.com/overview/tmg07">www.tracopower.com/overview/tmg07</a>

## General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Storage Temperature	-40°C to +70°C -40°C to +85°C
Power Derating	- High Temperature  - Low Input Voltage	2.5 %/K above 50°C (12-24 VDC models) 2.4 %/K above 45°C (5 VDC models) 2 %/V below 100 VAC  See application note: <a href="http://www.tracopower.com/overview/tmg07">www.tracopower.com/overview/tmg07</a>
Cooling System		Natural convection (20 LFM)
Altitude During Operation		3'000 m max.
Switching Frequency		60 - 140 kHz (PWM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		340 VAC
Isolation Test Voltage	- Input to Output, 60 s	3'000 VAC
Creepage	- Input to Output	5 mm min.
Clearance	- Input to Output	4.6 mm min.
Leakage Current (at 240 VAC)	- Earth Leakage Current	250 $\mu$ A max.
Reliability	- Calculated MTBF	500'000 h (MIL-HDBK-21 7F, ground benign)
Washing Process		Not allowed
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 $\mu$ m min.), matte
Housing Type		Plastic Case
Mounting Type		PCB Mount
Connection Type		THD (Through-Hole Device)
Soldering Profile		Lead-Free Wave Soldering 270°C / 3 s max.
Weight		26 g

All specifications valid at 230 VAC, 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)

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

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

Exemptions: 7c-I

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule))

- SCIP Reference Number

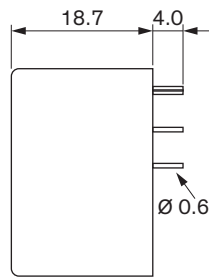
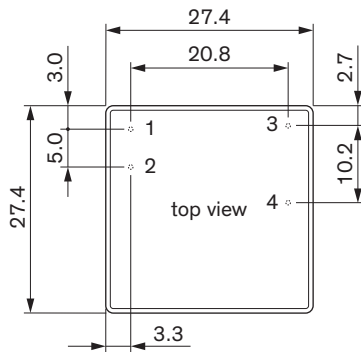
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### Supporting Documents

[Overview Link](#) (for additional Documents)

[www.tracopower.com/overview/tmg07](http://www.tracopower.com/overview/tmg07)

### Outline Dimensions



Dimensions in mm  
Tolerances  $\pm 0.5$  mm  
Pin tolerances  $\pm 0.1$  mm

#### Pinout

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