

- Fully encapsulated power supplies in plastic casing for PCB mount
- Fully regulated outputs
- 4242 VDC I/O-isolation
- High efficiency up to 90%
- 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 protection



TMG 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               | 5.0 VDC               | 1260 mA               | 77 %              |
| TMG 07112  | 7 W                 | 12 VDC                | 583 mA                | 80 %              |
| TMG 07115  | 7 W                 | 15 VDC                | 466 mA                | 80 %              |
| TMG 07124  | 7 W                 | 24 VDC                | 292 mA                | 80 %              |
| TMG 15105  | 13.5 W              | 5.0 VDC               | 2700 mA               | 80 %              |
| TMG 15112  | 15 W                | 12 VDC                | 1250 mA               | 84 %              |
| TMG 15115  | 15 W                | 15 VDC                | 1000 mA               | 84 %              |
| TMG 15124  | 15 W                | 24 VDC                | 625 mA                | 85 %              |
| TMG 30103  | 16.5 W              | 3.3 VDC               | 5000 mA               | 80 %              |
| TMG 30105  | 25 W                | 5.0 VDC               | 5000 mA               | 84 %              |
| TMG 30112  | 30 W                | 12 VDC                | 2500 mA               | 89 %              |
| TMG 30115  | 30 W                | 15 VDC                | 2000 mA               | 86 %              |
| TMG 30124  | 30 W                | 24 VDC                | 1250 mA               | 86 %              |
| TMG 50105  | 40 W                | 5.0 VDC               | 8000 mA               | 86 %              |
| TMG 50112  | 50 W                | 12 VDC                | 4167 mA               | 90 %              |
| TMG 50115  | 50 W                | 15 VDC                | 3333 mA               | 87 %              |
| TMG 50124  | 50 W                | 24 VDC                | 2083 mA               | 88 %              |
| TMG 50148  | 50 W                | 48 VDC                | 1040 mA               | 89 %              |

### Input Specifications

|                                |            |   |
|--------------------------------|------------|---|
| Input voltage                  | – AC Input | 30 W model: 90 – 305 VAC (47 – 63 Hz)<br>other models: 90 – 264 VAC (47 – 63 Hz)<br>all models: derating of 2%/V below 100 VAC required                                 |
|                                | – DC Input | 120 – 370 VDC (DC+: N / DC–: L)   |
| Leakage current                |            | < 0.25 mA (at <240 VAC)   |
| Inrush current*                |            | 7 W models: 20/40 A max. (115/230 VAC)<br>15 W models: 25/45 A max. (115/230 VAC)<br>30 W models: 30/60 A max. (115/230 VAC)<br>50 W models: 40/60 A max. (115/230 VAC) |
| No-load power consumption      |            | < 0.3 W   |
| External input fuse (required) |            | 7 & 15 W models: 2.0 A slow blow type<br>30 & 50 W models: 3.15 A slow blow type  |

### Output Specifications

|   |                             |   |
|---|-----------------------------|---|
| Voltage accuracy  |                             | ± 2 % max.  |
| Regulation  | – Input variation           | 0.5 % max.  |
|   | – Load variation (10–100 %) | 7 & 15 W models: 1.0 % max.   |
|   | – Load variation (0–100 %)  | 30 & 50 W models: 1.0 % max.  |
| Minimum load  |                             | not required  |
| Hold-up time  |                             | 7 W models: 30 ms min. (230 VAC)  |
|   |                             | 15 W models: 35 ms min. (230 VAC)   |
|   |                             | 30 W models: 10 ms min. (230 VAC)   |
|   |                             | 50 W models: 10 ms min. (230 VAC)   |
| Ripple and Noise (20MHz bandwidth)<br>(measured with 0.1µF & 47µF parallel capacitor) | 5 VDC models:               | 120 mVp-p max.  |
|   | other models:               | 1 % of Vout max.  |
| Over power protection   |                             | 7 W models: 134 – 203% of rated output power<br>15 W models: 164 – 228% of rated output power<br>30 W models: 172 – 268% of rated output power<br>50 W models: 200 – 258% of rated output power |
| Short circuit protection  |                             | hiccup, indefinite, auto recovery   |
| Overvoltage protection  | 15, 30 & 50 W models:       | by Zener diode  |

| Max. capacitive load [µF] | 3.3 VDC | 5.0 VDC | 12 VDC | 15 VDC | 24 VDC | 48 VDC |
|---------------------------|---------|---------|--------|--------|--------|--------|
| TMG 07                    | –       | 3'300   | 1'000  | 470    | 68     | –      |
| TMG 15                    | –       | 7'000   | 1'500  | 1'000  | 470    | –      |
| TMG 30                    | 6'800   | 6'800   | 1'600  | 1'200  | 470    | –      |
| TMG 50                    | –       | 10'000  | 3'500  | 3'000  | 2'200  | 330    |

### General Specifications

|                                  |   |                                     |
|----------------------------------|---|-------------------------------------|
| Temperature ranges               | – operational (natural convection 20 LFM) | –40°C to +70°C max.                 |
|                                  | – Storage temperature                     | –40°C to +85°C max.                 |
| Power derating                   |   | see derating graphs on page 3       |
| Temperature coefficient          |   | 0.02 %/K                            |
| Cooling                          |   | natural convection, no internal fan |
| Altitude during operation        | 7 & 15 W models:                          | 3000 m max.                         |
|                                  | 30 & 50 W models:                         | 2000 m max.                         |
| Switching frequency (at 230 VAC) | 7 W models:                               | 60 kHz – 140 kHz                    |
|                                  | 15 W models:                              | 40 kHz – 140 kHz                    |
|                                  | 30 W models:                              | 40 kHz – 73 kHz                     |
|                                  | 50 W models:                              | 60 kHz – 70 kHz                     |

\* 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

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

### General Specifications (continued)

|  |  |   |
|--|--|---|
| Humidity (non condensing)                      |  | 95 % rel. H max.  |
| Isolation                                      | – Input/Output                               | 15 W models: 5656 VDC<br>other models: 4242 VDC   |
| MTBF (MIL-HDBK-217F, at 25 °C ground benign)   |  | 7 W models: > 500'000 h<br>15 W models: > 450'000 h<br>30 W models: > 400'000 h<br>50 W models: > 300'000 h                                   |
| Protection class                               |  | class II prepared   |
| Safety standards                               |  | IEC/EN 60950-1<br>UL 60950-1<br><a href="http://www.tracopower.com/overview/tmg">www.tracopower.com/overview/tmg</a>                          |
|  | – Certification documents                    |   |
| Electromagnetic compatibility (EMC), Emissions | – Conducted/Radiated RI suppression on input | EN 55032 class B  |
| Electromagnetic compatibility (EMC), Immunity  |  | EN 55024  |
|  | – Electrostatic discharge (ESD)              | IEC/EN 61000-4-2 4 kV / 8 kV criteria A   |
|  | – Radiated RF field immunity                 | IEC/EN 61000-4-3 10V/m criteria A   |
|  | – Electrical fast transient / burst immunity | IEC/EN 61000-4-4 2 kV criteria A  |
|  | – Surge immunity*                            | IEC/EN 61000-4-5 1 kV criteria A  |
|  | – Immunity to conducted RF disturbances      | IEC/EN 61000-4-6 10V criteria A   |
|  | – Magnetic field immunity                    | IEC/EN 61000-4-8 30 A/m criteria A  |
|  | – Mains voltage dips and interruptions       | IEC/EN 61000-4-11 30% / 500ms criteria A  |
| Case material                                  |  | plastic (UL94V-0 rated)   |
| Environmental compliance                       | – Reach<br>– RoHS                            | <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br>RoHS directive 2011/65/EU |

\* For the 7 & 15 W models an external Varistor has to be integrated in the circuit at the converter input (in parallel). Recommendation: 14S471K

**TMG 07:**



**TMG 15:**



**TMG 30:**



**TMG 50:**



### Outline Dimensions

#### TMG 07 xxx:



| Pinout |           |
|--------|-----------|
| Pin    | Single    |
| 1      | AC IN (N) |
| 2      | AC IN (L) |
| 3      | +Vout     |
| 4      | -Vout     |

Weight: 26 g (0.92 oz)

#### TMG 15 xxx:



| Pinout |           |
|--------|-----------|
| Pin    | Single    |
| 1      | AC IN (L) |
| 2      | AC IN (N) |
| 3      | -Vout     |
| 4      | +Vout     |

Weight: 47 g (1.66 oz)

Dimensions in [mm]  
 Tolerances:  $\pm 0.5$  mm  
 Pin tolerances:  $\pm 0.1$  mm

### Outline Dimensions (continued)

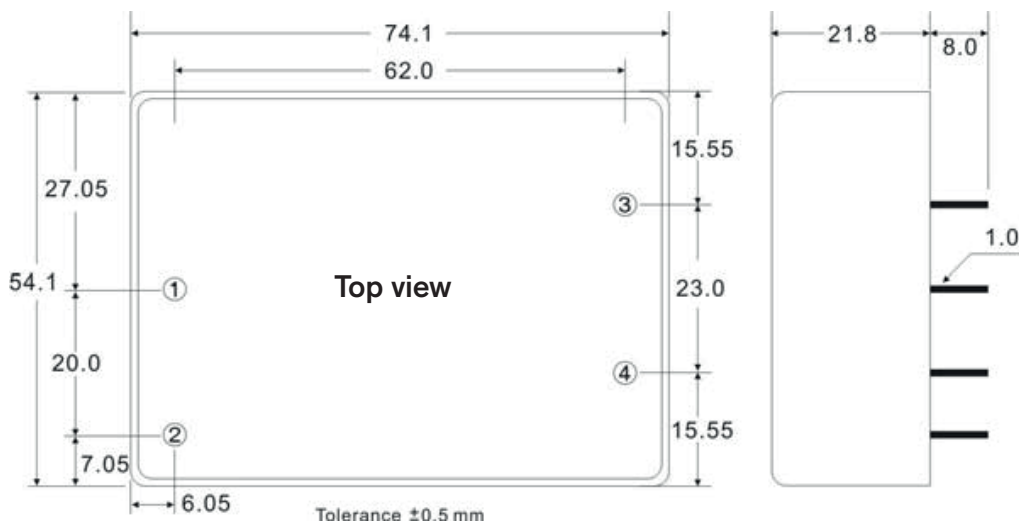
#### TMG 30 xxx:



| Pinout |           |
|--------|-----------|
| Pin    | Single    |
| 1      | AC IN (N) |
| 2      | AC IN (L) |
| 3      | -Vout     |
| 4      | No Pin    |
| 5      | +Vout     |

Weight: 130 g (4.59 oz)

#### TMG 50 xxx:



| Pinout |           |
|--------|-----------|
| Pin    | Single    |
| 1      | AC IN (N) |
| 2      | AC IN (L) |
| 3      | -Vout     |
| 4      | +Vout     |

Weight: 166 g (5.86 oz)

Dimensions in [mm]  
 Tolerances:  $\pm 0.5$  mm  
 Pin tolerances:  $\pm 0.1$  mm

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