



### Features

- ◆ Ultra compact, low profile plastic case
- ◆ Single-, dual- and triple output models
- ◆ 2 package versions:
  - Screw terminal block for chassis mount
  - Solder pins for direct PCB mount
- ◆ DIN-rail mount adaptor (optional)
- ◆ Universal input 85-264 VAC, 47-440 Hz
- ◆ Protection class II
- ◆ IEC/EN/UL 60950-1 approval, CB-report
- ◆ Short circuit and overload protection
- ◆ 3-year product warranty



The TMP series AC/DC Power Modules is a new range of fully encapsulated power supplies in an ultra-compact module. They feature easy chassis mounting with screw terminal block connection or direct PCB mounting with solder pins.

Full compliance with International safety standards for industrial control equipment qualifies the products for worldwide markets.

These power supplies offer a cost effective solution for many space critical applications in commercial and industrial electronic equipment.

### Single Output Models 7 to 10 Watt

Order code PCB-mount with solder pins only	Casing	Output power max.	Output
TMP 07103 TMP 07105 TMP 07112 TMP 07115 TMP 07124		4.6 W  <b>7 W</b>	3.3 VDC / 1400 mA 5.0 VDC / 1400 mA 12 VDC / 585 mA 15 VDC / 465 mA 24 VDC / 290 mA
TMPM 10103 TMPM 10105 TMPM 10112 TMPM 10115 TMPM 10124	Small footprint	8.2 W  <b>10 W</b>	3.3 VDC / 2500 mA 5.0 VDC / 2000 mA 12 VDC / 830 mA 15 VDC / 665 mA 24 VDC / 415 mA
TMP 10103 TMP 10105 TMP 10112 TMP 10115 TMP 10124	Low profile	6.6 W  <b>10 W</b>	3.3 VDC / 2000 mA 5.0 VDC / 2000 mA 12 VDC / 830 mA 15 VDC / 665 mA 24 VDC / 415 mA

30 & 60 Watt and multi output models see next page ->

**Single Output Models 15 to 60 Watt**

Order code		Output power max.	Output		
PCB-mount with solder pins	Chassis mount with screw terminal block				
TMP 15105 TMP 15112 TMP 15115 TMP 15124 TMP 15148	TMP 15105C TMP 15112C TMP 15115C TMP 15124C TMP 15148C	15 W	5 VDC / 3000 mA 12 VDC / 1250 mA 15 VDC / 1000 mA 24 VDC / 625 mA 48 VDC / 310 mA		
TMP 30105 TMP 30112 TMP 30115 TMP 30124 TMP 30148	TMP 30105C TMP 30112C TMP 30115C TMP 30124C TMP 30148C		30 W	5 VDC / 6000 mA 12 VDC / 2500 mA 15 VDC / 2000 mA 24 VDC / 1250 mA 48 VDC / 625 mA	
TMP 60105 TMP 60112 TMP 60115 TMP 60124 TMP 60136 TMP 60148	TMP 60105C TMP 60112C TMP 60115C TMP 60124C TMP 60136C TMP 60148C			51 W	5.1 VDC / 10'000 mA 12 VDC / 5000 mA 15 VDC / 4000 mA 24 VDC / 2500 mA 36 VDC / 1665 mA 48 VDC / 1250 mA
				60 W	

**Dual- and Triple Output Models**

Order code		Output power max.	Output 1	Output 2	Output 3	
PCB-mount with solder pins	chassis mount with screw terminal block					
TMP 10212 TMP 10215		10 Watt	+12 VDC/380 mA +15 VDC/300 mA	-12 VDC/380 mA -15 VDC/300 mA		
TMP 15212 TMP 15215 TMP 15252 TMP 15512 TMP 15515	TMP 15212C TMP 15215C TMP 15252C TMP 15512C TMP 15515C		15 Watt	+12 VDC/650 mA +15 VDC/500 mA 5.0 VDC/1500 mA 5.0 VDC/2000 mA 5.0 VDC/2000 mA	-12 VDC/650 mA -15 VDC/500 mA 12 VDC/625 mA +12 VDC/200 mA +15 VDC/150 mA	-12 VDC/200 mA -15 VDC/150 mA
TMP 30212 TMP 30215 TMP 30252 TMP 30512 TMP 30515 TMP 30522 TMP 30316 TMP 30317	TMP 30212C TMP 30215C TMP 30252C TMP 30512C TMP 30515C TMP 30522C TMP 30316C TMP 30317C	30 Watt		+12 VDC/1300 mA +15 VDC/1000 mA 5.0 VDC/3000 mA <sup>1)</sup> 5.0 VDC/3000 mA <sup>1)</sup> 5.0 VDC/3000 mA <sup>1)</sup> 5.0 VDC/3000 mA <sup>1)</sup> 3.3 VDC/4000 mA <sup>2)</sup> 5.0 VDC/4500 mA <sup>3)</sup>	-12 VDC/1300 mA -15 VDC/1000 mA 12 VDC/1250 mA <sup>4)</sup> +12 VDC/600 mA <sup>5)</sup> +15 VDC/500 mA <sup>6)</sup> +12 VDC/1000 mA <sup>7)</sup> +5.0 VDC/1500 mA <sup>8)</sup> +3.3 VDC/1000 mA <sup>7)</sup>	-12 VDC/600 mA <sup>5)</sup> -15 VDC/500 mA <sup>6)</sup> -12 VDC/250 mA <sup>9)</sup> +12 VDC/250 mA <sup>9)</sup> +12 VDC/250 mA <sup>9)</sup>

Peak current: <sup>1)</sup>4500 mA <sup>2)</sup>5300 mA <sup>3)</sup>6000 mA <sup>4)</sup>1800 mA <sup>5)</sup>900 mA <sup>6)</sup>750 mA <sup>7)</sup>1500 mA <sup>8)</sup>2000 mA <sup>9)</sup>500 mA  
 Total load not to exceed 30 Watt.

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

### Input Specifications

Input voltage	- nominal	100 – 240 VAC
	- AC range (universal input)	85 – 264 VAC (90–264 VAC for TMPM models)
	- DC range	120 – 370 VDC
Input frequency	- nominal	50 / 60 Hz
	- range	7 – 30 W models: 47 – 440 Hz 60 W models: 47 – 63 Hz
Input current at full load (115 VAC / 230 VAC)	7 W models:	150 mA / 100 mA typ.
	10 W models:	200 mA / 130 mA typ.
	15 W models:	300 mA / 190 mA typ.
	30 W models:	550 mA / 330 mA typ.
	60 W models:	1050 mA / 670 mA typ.
Input current at no load (115 VAC / 230 VAC)		15 mA / 20 mA typ.
Inrush current (< 2ms, cold start at 115 VAC / 230 VAC)	7 – 10 W models:	10 A / 20 A
	15 W models:	15 A / 30 A
	30 W models:	20 A / 40 A
	60 W models:	30 A / 50 A
External input fuse required (recommended value)	7 – 30 W models:	1.5 A slow blow
	other models:	3.0 A slow blow

### Output Specifications

Voltage set accuracy		±2 % max.
Regulation	- Input variation	1 % max.
	- Load variation	single output models (10–100%): 1 % max. dual output models balanced load (10–100%): 2.5 % max. dual output models unbalanced load (20/100%): 5.0 % max. triple output models main output (10–100%): 1.0 % max. triple output models auxiliary outputs (10–100%): 4.0 % max.
Minimum load	single an dual output models:	10 % of rated max. current
	triple output models main output:	10 % of rated max. current
	triple output models auxiliary outputs:	20 % of rated max. current
		operation at lower load condition will not damage these power supplies, however, they may not meet all listed specifications.
Ripple and noise (20MHz bandwidth)	3.3 VDC & 5.0 VDC outputs:	1.8 % of Vout [mVpk-pk]
	other outputs:	1.3 % of Vout [mVpk-pk]
Overload protection by current limit		105 % min. of Inom, fold back, automatic recovery (long term overload condition may cause damage to the power supply)
Overvoltage protection by Zehner diode (main output only)		120 % of Vout typ.

Max. capacitive load [µF]		Model series					
Output:		TMP 07	TMPM 10	TMP 10	TMP 15	TMP 30	TMP 60
Single output models:	3.3 VDC	2200	2200	3900	-	-	-
	5.0 / 5.1 VDC	2200	2200	3300	3900	8000	8000
	12 / 15 VDC	1000	1000	2200	2200	3900	3900
	24 VDC	680	680	1000	1000	1500	1500
	36 VDC	-	-	-	-	-	1000
Dual output models:	48 VDC	-	-	-	680	1000	800
	5 VDC	-	-	-	2000	3900	-
	+12 / -12 / +15 / -15 VDC	-	-	1000	1500	1500	-
Triple output models:	3.3 / 5.0 VDC	-	-	-	2200	2200	-
	+12 / -12 / +15 / -15 VDC	-	-	-	1500	1500	-

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

### Output Specifications

Rise time	200 ms typ.
Hold-up time	20 ms typ.

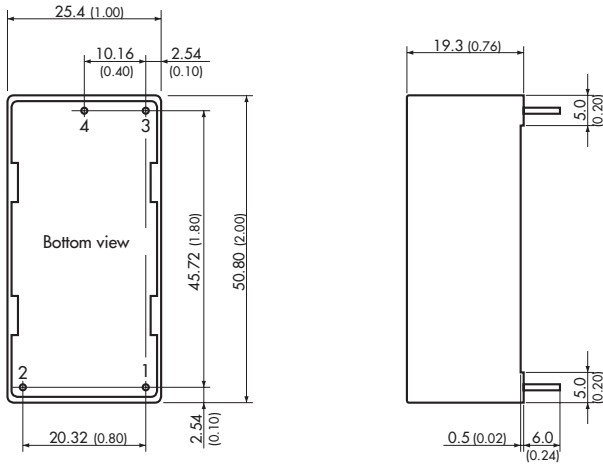
### General Specifications

Temperature ranges	<ul style="list-style-type: none"> <li>- Operating</li> <li>- Storage (non-operating)</li> </ul>	-25°C to +60°C -40°C to +85°C
Over temperature protection		at 90°C (automatic recovery at 67°C)
Power derating		3.5 %/K above +50°C 2.5 %/K above +40°C for TMP 60105(C)
Temperature coefficient		0.02 %/K
Humidity (non-condensing)		95 % rel. H max.
Efficiency		78 % typ.
Switching frequency		100 kHz typ. (fixed)
Isolation voltage (60 sec.)	- Input/Output	3'000 VAC
Isolation resistance	- Input/Output	100 MΩ (at 500 VDC)
Electromagnetic compatibility (EMC), Emissions		EN 61000-6-3: 2007 EN 61204-3: 2000, class A EN 55022, level B, FCC Part 15 level B
Electromagnetic compatibility (EMC), Immunity	<ul style="list-style-type: none"> <li>- Electrostatic discharge ESD</li> <li>- RF field susceptibility</li> <li>- Electrical fast transient / burst immunity input</li> <li>- Electrical fast transient / burst immunity output</li> <li>- Surge immunity line - neutral</li> <li>- Surge immunity output</li> <li>- Immunity to conducted RF disturbances</li> <li>- Mains voltage dips and interruptions</li> </ul>	EN 61000-6-2: 2005 EN 61204-3: 2000, class A EN 61000-4-2    8 kV / 4 kV, criteria B EN 61000-4-3    10 V/m, criteria A EN 61000-4-4    ±2 kV, criteria B EN 61000-4-4    ±2 kV, criteria B EN 61000-4-5,   ±1 kV, criteria B EN 61000-4-5    ±0.5 kV, criteria B EN 61000-4-6    10 V, criteria B EN 61000-4-11  30 % 10 ms, criteria B 60 % 100 ms, criteria C 95 % 5000 ms, criteria C
EMC test certificates		<a href="http://www.tracopower.com/products/tmp-emc.pdf">www.tracopower.com/products/tmp-emc.pdf</a>
Protection class II		to IEC/EN 60536
Safety standards	<ul style="list-style-type: none"> <li>- Information technology equipment</li> <li>- Industrial control equipment</li> </ul>	IEC/EN 60950-1, UL 60950-1 UL/cUL 508 (chassis mount single and symmetric dual output models only)
Safety approvals	<ul style="list-style-type: none"> <li>- CB certificate for IEC 60950-1</li> <li>- UL approvals for UL 60950-1</li> <li>- UL approval for UL 508</li> </ul>	TMP 07 models: <a href="http://www.tracopower.com/products/tmp07-cb.pdf">www.tracopower.com/products/tmp07-cb.pdf</a> TMP 10 models: <a href="http://www.tracopower.com/products/tmp10-cb.pdf">www.tracopower.com/products/tmp10-cb.pdf</a> TMPM 10 models: <a href="http://www.tracopower.com/products/tmpm10-cb.pdf">www.tracopower.com/products/tmpm10-cb.pdf</a> TMP 15 models: <a href="http://www.tracopower.com/products/tmp15-cb.pdf">www.tracopower.com/products/tmp15-cb.pdf</a> TMP 30 single output models: <a href="http://www.tracopower.com/products/tmp30-cb.pdf">www.tracopower.com/products/tmp30-cb.pdf</a> TMP 30 dual / triple output models: <a href="http://www.tracopower.com/products/tmp30-cb2.pdf">www.tracopower.com/products/tmp30-cb2.pdf</a> TMP 60 models: <a href="http://www.tracopower.com/products/tmp60-cb.pdf">www.tracopower.com/products/tmp60-cb.pdf</a> <a href="http://www.ul.com">www.ul.com</a> -> certifications -> File: E188913 <a href="http://www.ul.com">www.ul.com</a> -> certifications -> File: E322109
Reliability /calculated MTTF (MIL-HDBK-217F, @ +25°C, ground benign)		TMP 07 models: >330'000 h TMP 10 models: >300'000 h TMPM 10 models: >330'000 h TMP 15 models: >280'000 h TMP 30 models: >250'000 h TMP 60 models: >125'000 h
Casing material		plastic resin + fiberglass (UL 94V-0 rated)

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

**Outline Dimensions**

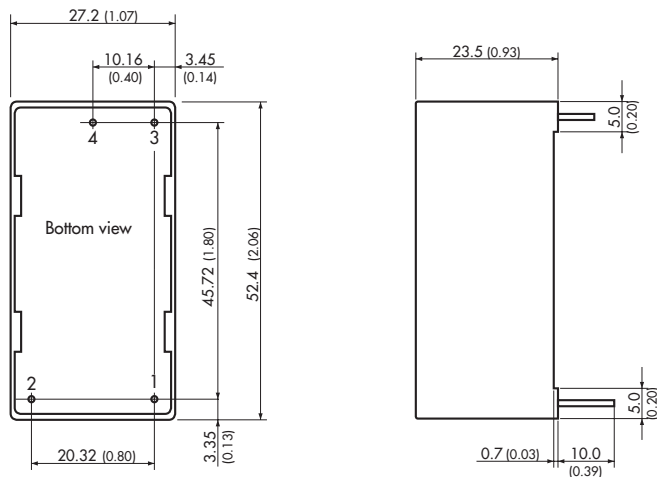
**TMP 07 models:**



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

Pin diameter: 1.0 (0.04)  
Weight: 44 g (1.55 oz)

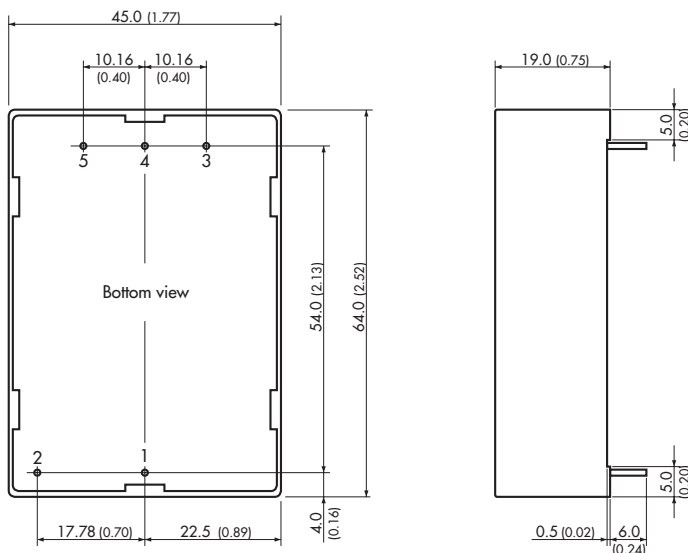
**TMPM 10 models:**



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

Pin diameter: 1.0 (0.04)  
Weight: 54 g (1.90 oz)

**TMP 10 models:**

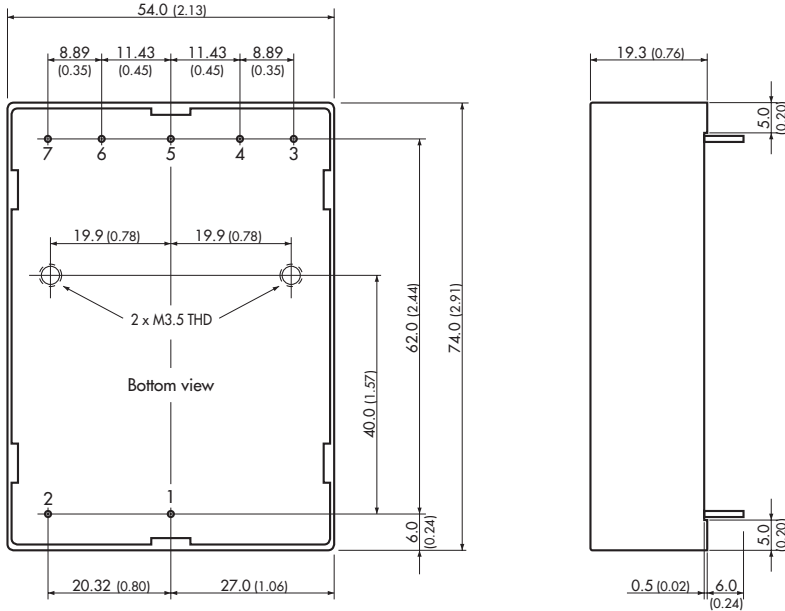


Pin-Out		
Pin	Single	Dual
1	AC (N)	AC (N)
2	AC (L)	AC (L)
3	-Vout	Vout 2
4	ntc	com.1/2
5	+Vout	Vout 1

(ntc = not to connect)  
Pin diameter: 1.0 (0.04)  
Weight: 92 g (3.25 oz)  
Dimensions in [mm], ( ) = Inches  
Case tolerances: ±0.5 (±0.02)  
Pin pitch tolerance: ±0.25 (±0.01)

**Outline Dimensions**

TMP 15 models for PCB mount:

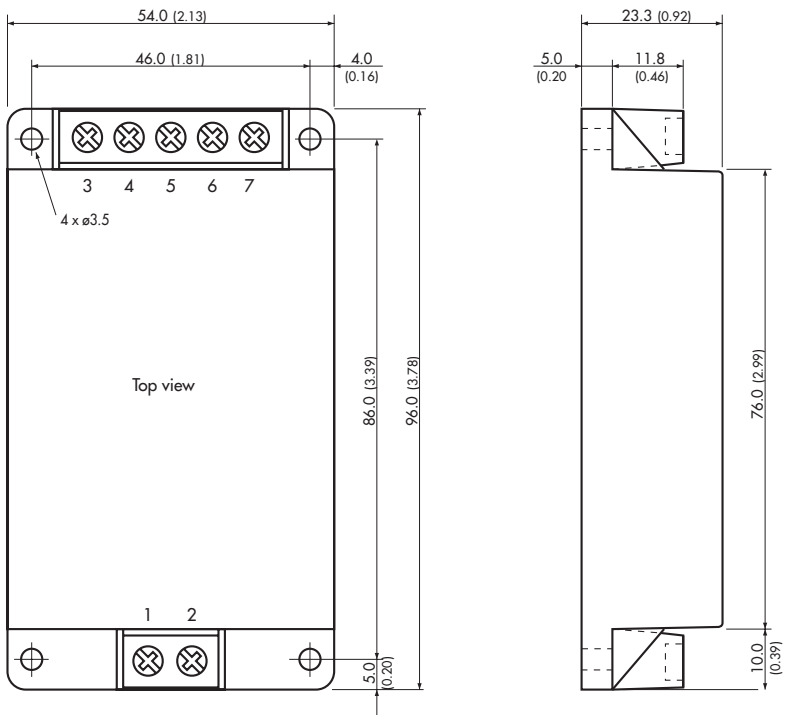


Pin-Out				
Pin	Single	Dual sym.	Dual asym.	Triple
1	AC (N)			
2	AC (L)			
3	no pin			Vout 3
4	-Vout	Vout 2	-Vout 2	com.2/3
5	no pin	com.1/2	+Vout 2	Vout 2
6	+Vout	Vout 1	-Vout 1	-Vout 1
7	no pin		+Vout 1	+Vout 1

Pin diameter: 1.0 (0.04)

Weight: 114 g (4.02 oz)

TMP 15 models for chassis mount:



Connection				
Pin	Single	Dual sym.	Dual asym.	Triple
1	AC (N)			
2	AC (L)			
3	not to connect			Vout 3
4	-Vout	Vout 2	-Vout 2	com.2/3
5	ntc	com.1/2	+Vout 1	Vout 2
6	+Vout	Vout 1	-Vout 1	-Vout 1
7	not to connect		+Vout 1	+Vout 1

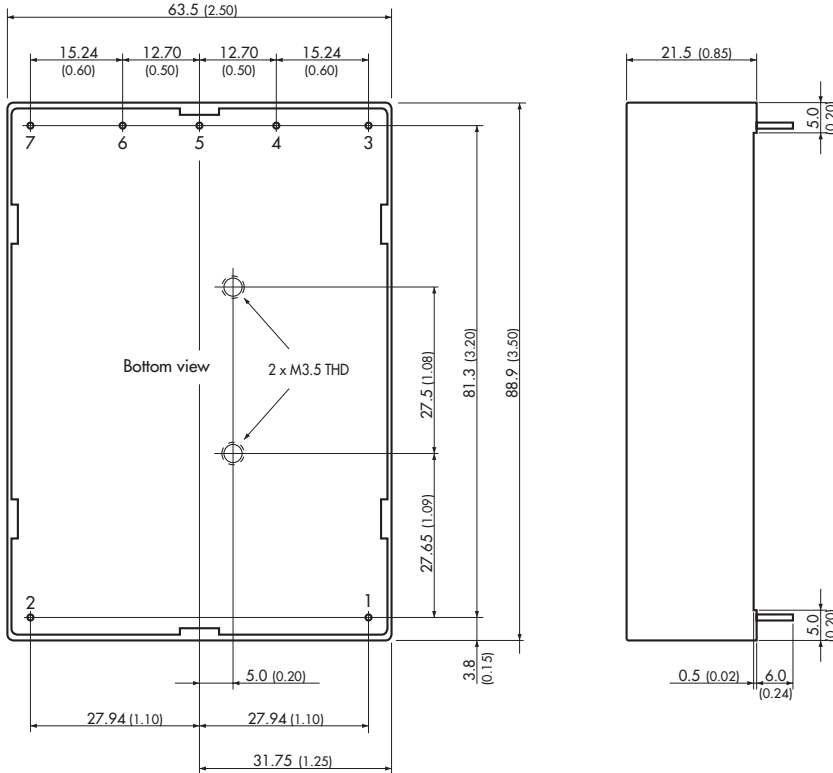
(ntc = not to connect)

Weight: 162 g (5.71 oz)

Dimensions in [mm], ( ) = Inches  
Case tolerances: ±0.5 (±0.02)  
Pin pitch tolerance: ±0.25 (±0.01)  
Mounting hole tolerance: ±0.25 (±0.02)

**Outline Dimensions**

TMP 30 models for PCB mount:



Pin diameter: 1.0 (0.04)  
Weight: 177 g (6.24 oz)

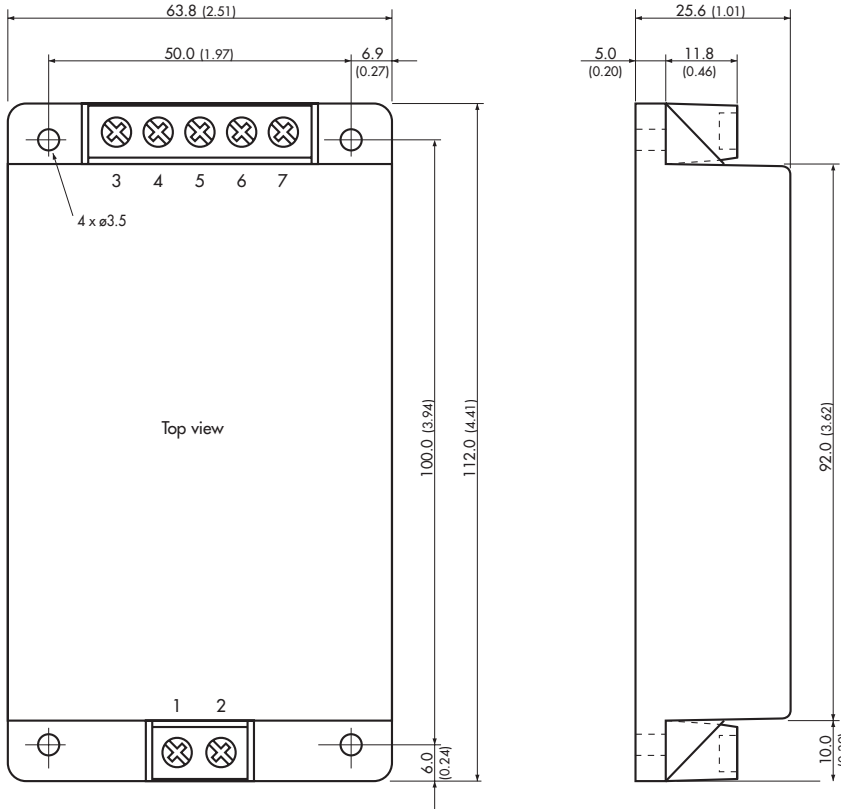
Pin-Out				
Pin	Single	Dual sym.	Dual asym.	Triple
1	AC (N)			
2	AC (L)			
3	+Vout	Vout 1	+Vout 2	Vout 2
4	no pin		+Vout 1	+Vout 1
5	-Vout	com. 1/2	-Vout 2	com 2/3
6	no pin		-Vout 1	-Vout 1
7	ntc	Vout 2	ntc	Vout 3

(ntc = not to connect)

Dimensions in [mm], ( ) = Inches  
Case tolerances: ±0.5 (±0.02)  
Pin pitch tolerance: ±0.25 (±0.01)  
Mounting hole tolerance: ±0.25 (±0.02)

**Outline Dimensions**

TMP 30 models for chassis mount:



Weight: 191 g (6.74 oz)

Connection				
Pin	Single	Dual sym.	Dual asym.	Triple
1	AC (N)			
2	AC (L)			
3	+Vout	Vout 1	+Vout 2	Vout 2
4	not to connect		+Vout 1	+Vout 1
5	-Vout	com.1/2	-Vout 2	com 2/3
6	not to connect		-Vout 1	-Vout 1
7	ntc	Vout 2	ntc	Vout 3

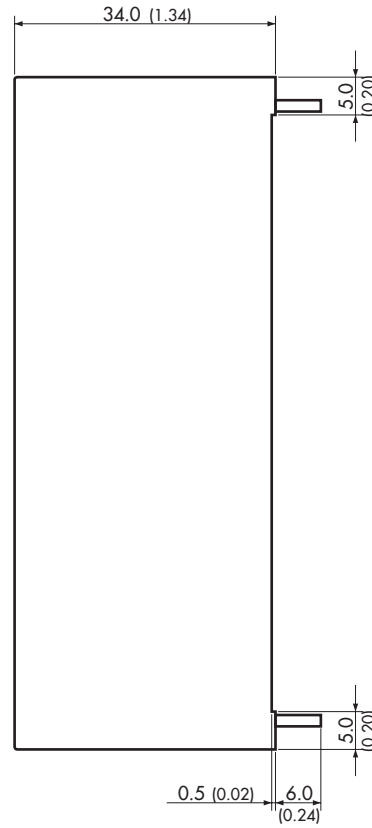
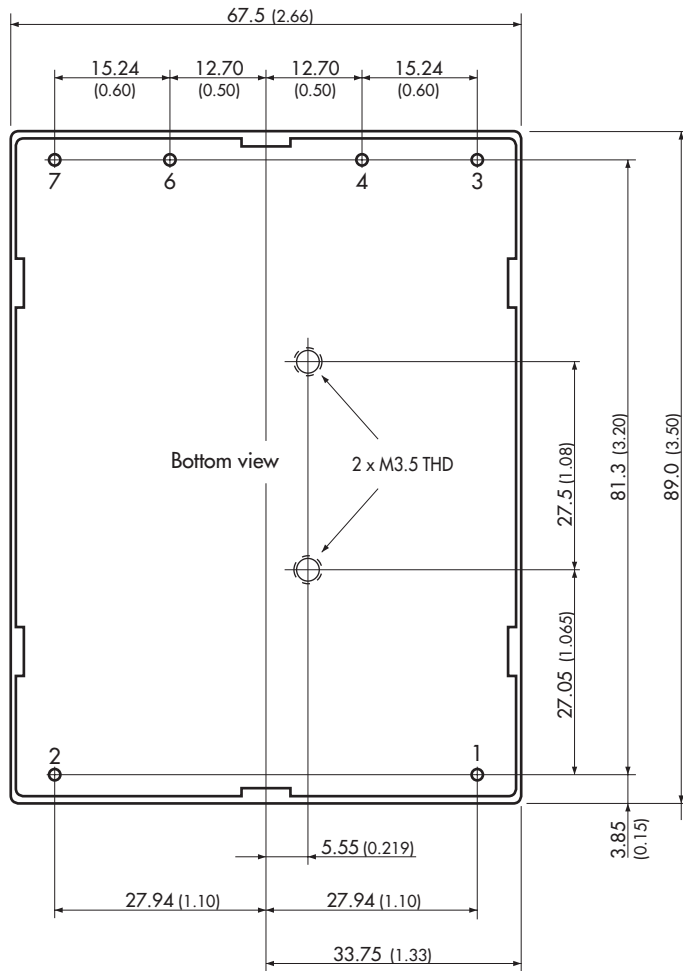
(ntc = not to connect)

Dimensions in [mm], ( ) = Inches  
Case tolerances: ±0.5 (±0.02)  
Mounting hole tolerance: ±0.25 (±0.02)



**Outline Dimensions**

TMP 60 models for PCB mount:



Pin diameter: 2.0 (0.08)

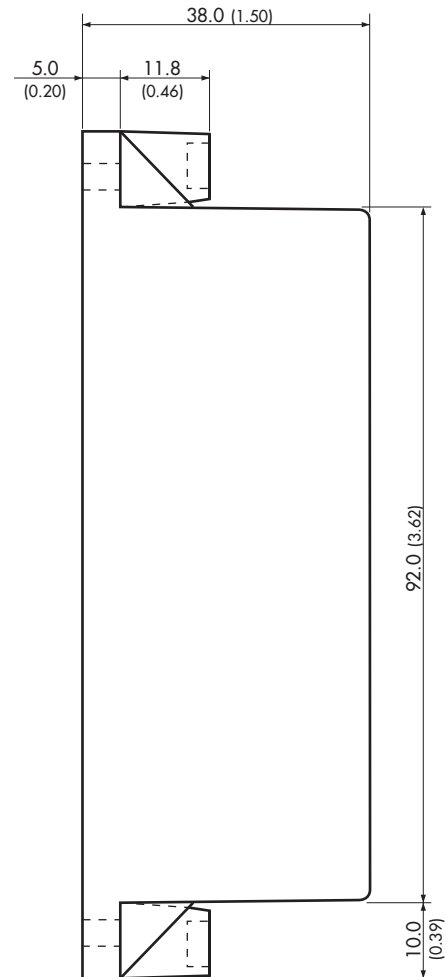
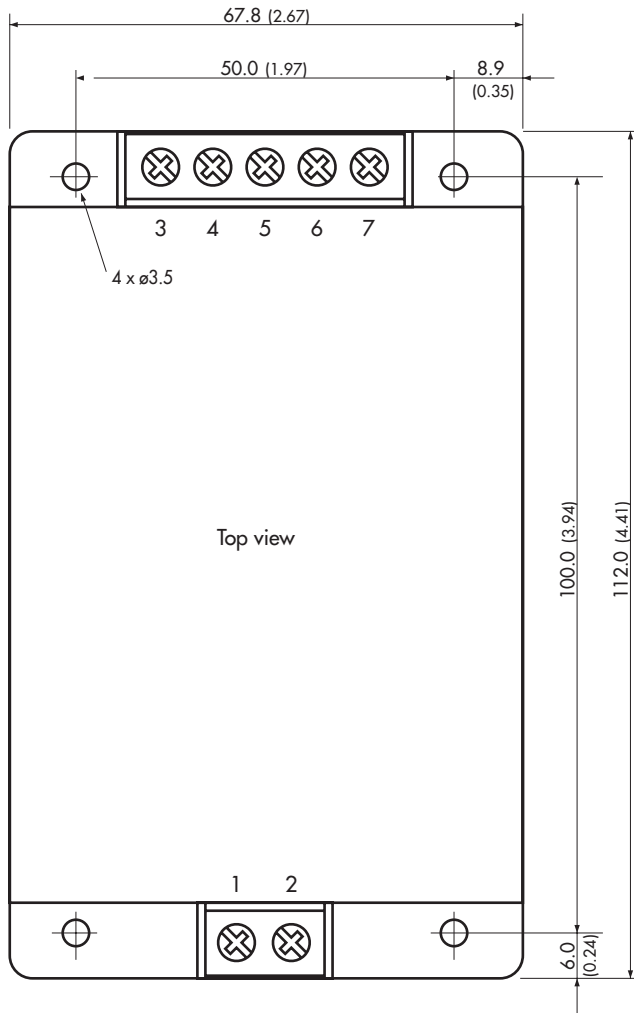
Weight: 345 g (12.17 oz)

Pin-Out	
Pin	Single
1	AC (N)
2	AC (L)
3	no pin
4	+Vout
6	-Vout
7	no pin

Dimensions in [mm], ( ) = Inches  
Case tolerances:  $\pm 0.5$  ( $\pm 0.02$ )  
Pin pitch tolerance:  $\pm 0.25$  ( $\pm 0.01$ )  
Mounting hole tolerance:  $\pm 0.25$  ( $\pm 0.02$ )

**Outline Dimensions**

TMP 60 models for chassis mount:



Weight: 357 g (12.95 oz)

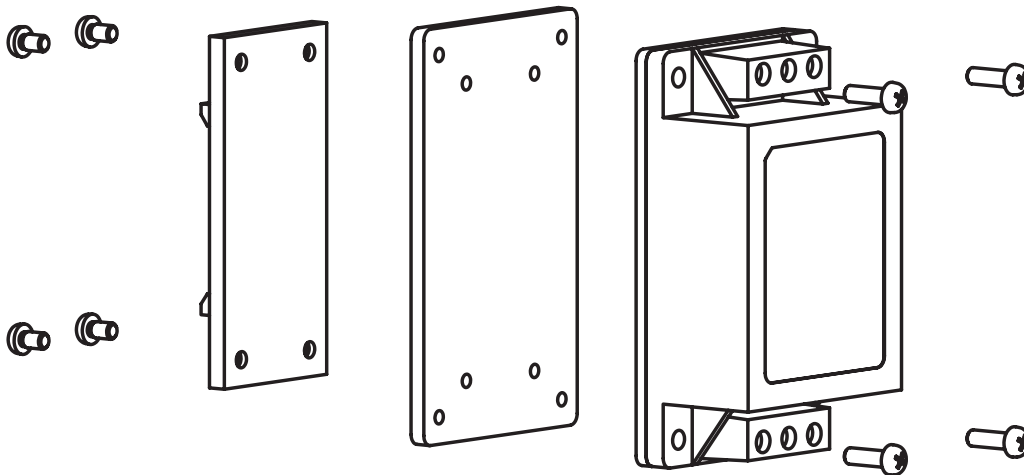
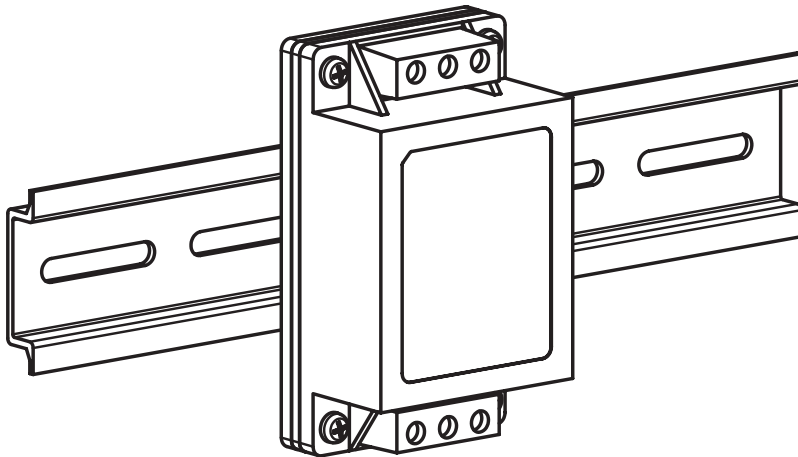
Connection	
Pin	Single
1	AC (N)
2	AC (L)
3	ntc
4	+Vout
5	ntc
6	-Vout
7	ntc

(ntc = not to connect)

Dimensions in [mm], ( ) = Inches  
Case tolerances: ±0.5 (±0.02)  
Mounting hole tolerance: ±0.25 (±0.02)

**DIN-Rail Mounting Kit**

Adapter for mounting on DIN-rails as per EN 50022-35 (snap-on mounting)



**DIN-Rail Mounting Kit**

Order code	For models
TMP-MK1	TMP 15xxxC
TMP-MK2	TMP 30xxxC & TMP 60xxxC

Kit contains interface plate, DIN-rail clip and necessary screws.

Specifications can be changed any time without notice.