

 **TRACO POWER**

**Medical Power Solutions**  
Product Portfolio 2018



90

## **TRACO POWER products for applied versus non-applied medical requirements**

**For non-applied parts** sections of medical equipment, power and safety requirements can be satisfied by any of Traco Power power supplies, non-medical for 1×MOOP applications and medical rated power supplies for all other MOPP levels. If this part of the system is attaching to a DC input from a non-medical rated power supply, then use of our DC/DC Converters should satisfy safety requirements for 1×MOPP / 2×MOPP applications.

**For applied parts** sections of medical equipment, the clearance and creepage distances, as well as a secondary isolation barrier are required to further isolate the patient from potentially high voltages (2×MOPP is means of patient protection). The isolation barrier may be satisfied using Traco Power medical rated 2×MOPP AC/DC power supplies or DC/DC converters. Even this reinforced insulation system does not unconditionally qualify a power supply unit and DC/DC converter for medical applications. Particular and collateral standards also require that a risk/quality management System be in place at the component level, especially for safety critical applications.

**TRACO POWER products** for applied parts applications with a 2×MOPP rating, have been carefully designed and manufactured to the highest standards to meet the increased quality, reliability and safety standards for medical equipment. These products have fully regulated output voltages and feature:

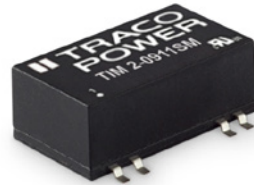
- Product certification according to IEC/EN/ES 60601-1 3rd edition for 2×MOPP
- Risk management process according to ISO 14971 including risk management file
- EMC emission an immunity to IEC 60601-1-2 edition 4
- Acceptance criteria for electronic assemblies according to IPC-A-610 Level 3
- Design and production to ISO 13485 quality management system (certification soon)
- 5-year product warranty

## TIM 2SM Series

NEW

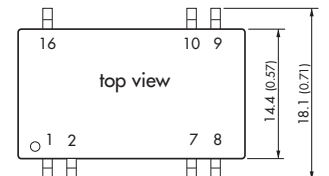
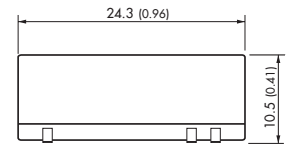
## 2 Watt DC/DC converter in SMD-16 package

- 2:1 input voltage with extended low input range:  
4.5-12, 9-18, 18-36, 36-75
- Output voltages:  
5.0, 12, 15, 24,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current
- Input filter to meet EN55022 class A



[www.tracopower.com/overview/tim2sm](http://www.tracopower.com/overview/tim2sm)

1: -Vin  
2: NC  
7: NC  
8: NC / com  
9: +Vout  
10: -Vout  
16: +Vin

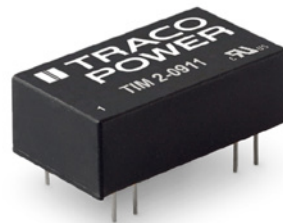


## TIM 2 Series

NEW

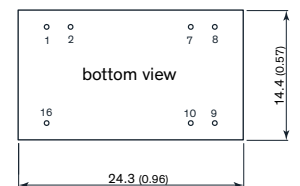
## 2 Watt DC/DC converter in DIP-16 package

- 2:1 input voltage with extended low input range:  
4.5-12, 9-18, 18-36, 36-75
- Output voltages:  
5.0, 12, 15, 24,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current
- Input filter to meet EN55022 class A



[www.tracopower.com/overview/tim2](http://www.tracopower.com/overview/tim2)

1: -Vin  
2: NC  
7: NC  
8: NC / com  
9: +Vout  
10: -Vout  
16: +Vin

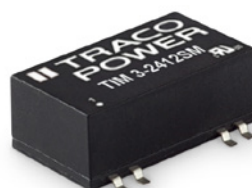


## TIM 3.5SM Series

NEW

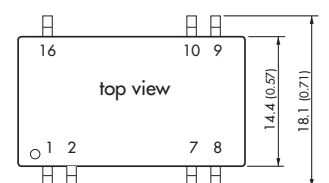
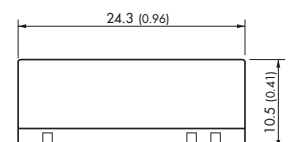
## 3.5 Watt DC/DC converter in SMD-16 package

- 2:1 input voltage with extended low input range:  
4.5-12, 9-18, 18-36, 36-75
- Output voltages:  
5.0, 12, 15, 24,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current
- Input filter to meet EN55022 class A



[www.tracopower.com/overview/tim3.5sm](http://www.tracopower.com/overview/tim3.5sm)

1: -Vin  
2: NC  
7: NC  
8: NC / com  
9: +Vout  
10: -Vout  
16: +Vin



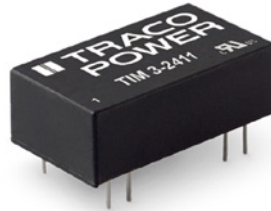
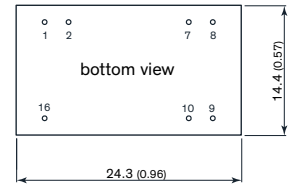
### TIM 3.5 Series

**NEW**

### 3.5 Watt DC/DC converter in DIP-16 package

- 2:1 input voltage with extended low input range:  
4.5-12, 9-18, 18-36, 36-75
- Output voltages:  
5.0, 12, 15, 24,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current
- Input filter to meet EN55022 class A

- 1: -Vin
- 2: NC
- 7: NC
- 8: NC / com
- 9: +Vout
- 10: -Vout
- 16: +Vin



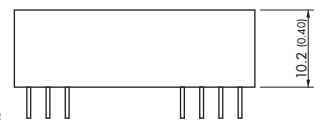
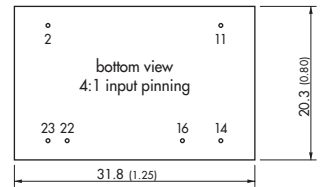
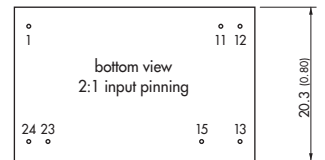
[www.tracopower.com/overview/tim3.5](http://www.tracopower.com/overview/tim3.5)

### THM 3(WI) Series

### 3 Watt DC/DC converter in DIP-24 package

- THM 3: 2:1 input voltage ranges  
4.5-9, 9-18, 18-36, 36-75  
THM 3WI: 4:1 input voltage ranges  
4.5-9, 9-36, 18-75 VDC
- Output voltages:  
3.3, 5.0, 12, 15, 24,  $\pm 5$ ,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current  $< 2 \mu\text{A}$
- Very high efficiency up to 87%
- Extended operating temperature range  
 $-40^\circ\text{C}$  to  $80^\circ\text{C}$  at full load.
- Input filter to meet EN55022 class A

- |               |               |
|---------------|---------------|
| 2:1 Input     | 4:1 Input     |
| Single output | Single output |
| 1: +Vin       | 2: -Vin       |
| 11: no pin    | 11: NC        |
| 12: -Vout     | 14: +Vout     |
| 13: +Vout     | 16: -Vout     |
| 15: no pin    | 22: +Vin      |
| 23: -Vin      | 23: +Vin      |
| 24: -Vin      |               |
| Dual output   | Dual output   |
| 1: +Vin       | 11: -Vout     |
| 11: com       | 14: +Vout     |
| 12: no pin    | 16: com       |
| 13: -Vout     | 22: +Vin      |
| 15: +Vout     | 23: +Vin      |
| 23: -Vin      |               |
| 24: -Vin      |               |



Optional: interchanged pinning

[www.tracopower.com/overview/thm3](http://www.tracopower.com/overview/thm3)

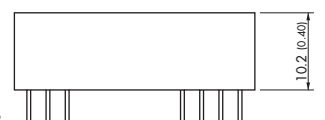
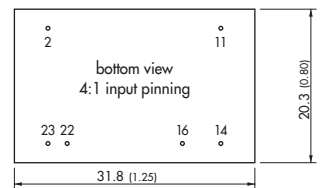
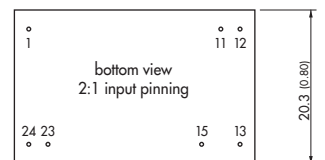
[www.tracopower.com/overview/thm3wi](http://www.tracopower.com/overview/thm3wi)

### THM 6(WI) Series

### 6 Watt DC/DC converter in DIP-24 package

- THM 6: 2:1 input voltage ranges  
4.5-9, 9-18, 18-36, 36-75  
THM 6WI: 4:1 input voltage ranges  
4.5-9, 9-36, 18-75 VDC
- Output voltages:  
3.3, 5.0, 12, 15, 24,  $\pm 5$ ,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for 250 VACrms working voltage
- Low leakage current  $< 2 \mu\text{A}$
- Very high efficiency up to 88%
- Extended operating temperature range  
 $-40^\circ\text{C}$  to  $70^\circ\text{C}$  at full load.
- Input filter to meet EN55022 class A

- |               |               |
|---------------|---------------|
| 2:1 Input     | 4:1 Input     |
| Single output | Single output |
| 1: +Vin       | 2: -Vin       |
| 11: no pin    | 11: NC        |
| 12: -Vout     | 14: +Vout     |
| 13: +Vout     | 16: -Vout     |
| 15: no pin    | 22: +Vin      |
| 23: -Vin      | 23: +Vin      |
| 24: -Vin      |               |
| Dual output   | Dual output   |
| 1: +Vin       | 11: -Vout     |
| 11: com       | 14: +Vout     |
| 12: no pin    | 16: com       |
| 13: -Vout     | 22: +Vin      |
| 15: +Vout     | 23: +Vin      |
| 23: -Vin      |               |
| 24: -Vin      |               |



Optional: interchanged pinning

[www.tracopower.com/overview/thm6](http://www.tracopower.com/overview/thm6)

[www.tracopower.com/overview/thm6wi](http://www.tracopower.com/overview/thm6wi)

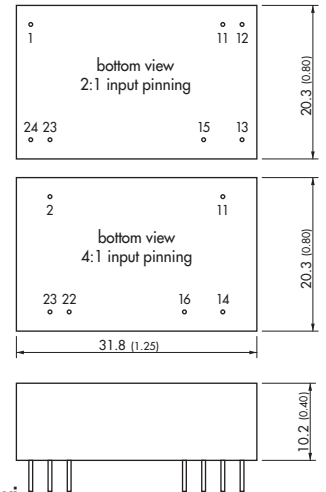
### THM 10(WI) Series

### 10 Watt DC/DC converter in DIP-24 package

- THM 10: 2:1 input voltage ranges  
4.5-9, 9-18, 18-36, 36-75  
THM 10WI: 4:1 input voltage ranges  
4.5-9, 9-36, 18-75 VDC
- Output voltages:  
3.3, 5.0, 12, 15, 24,  $\pm 5$ ,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for  
250 VACrms working voltage
- Low leakage current  $< 2 \mu\text{A}$
- Very high efficiency up to 89%
- Input filter to meet EN55022 class A



2:1 Input	4:1 Input
Single output	Single output
1: +Vin	2: -Vin
11: no pin	11: NC
12: -Vout	14: +Vout
13: +Vout	16: -Vout
15: no pin	22: +Vin
23: -Vin	23: +Vin
24: -Vin	
Dual output	Dual output
1: +Vin	11: -Vout
11: com	14: +Vout
12: no pin	16: com
13: -Vout	22: +Vin
15: +Vout	23: +Vin
23: -Vin	
24: -Vin	



[www.tracopower.com/overview/thm10](http://www.tracopower.com/overview/thm10)    [www.tracopower.com/overview/thm10wi](http://www.tracopower.com/overview/thm10wi)

### THM 15(WI) Series

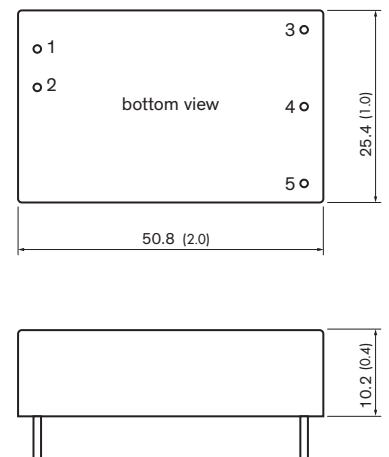
**NEW models**

### 15 Watt DC/DC converter in 1.6" x 1" package

- THM 15: 2:1 input voltage ranges:  
9-18, 18-36, 36-75  
THM 15WI: 4:1 input voltage ranges:  
9-36, 18-75
- Output voltages:  
5.0, 12, 15, 24 VDC adjust.  $\pm 10\%$   
 $\pm 5$ ,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for  
250 VACrms working voltage
- Low leakage current
- Very high efficiency up to 90%



Single output
1: +Vin
2: -Vin
4: +Vout
5: -Vout
6: Trim
Dual output
1: +Vin
2: -Vin
4: +Vout
5: com.
6: -Vout



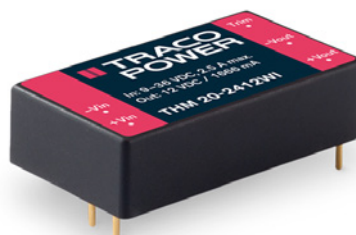
[www.tracopower.com/overview/thm15](http://www.tracopower.com/overview/thm15)    [www.tracopower.com/overview/thm15wi](http://www.tracopower.com/overview/thm15wi)

### THM 20(WI) Series

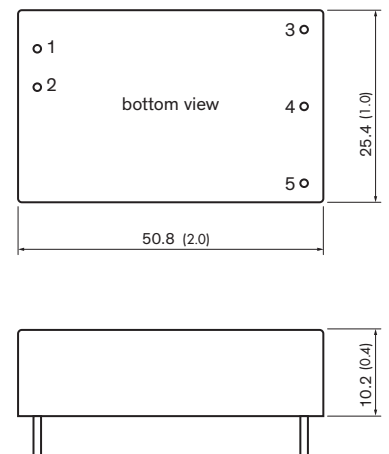
**NEW models**

### 20 Watt DC/DC converter in 1.6" x 1" package

- THM 20: 2:1 input voltage ranges:  
9-18, 18-36, 36-75  
THM 20WI: 4:1 input voltage ranges:  
9-36, 18-75
- Output voltages:  
5.0, 12, 15, 24 VDC adjust.  $\pm 10\%$   
 $\pm 5$ ,  $\pm 12$ ,  $\pm 15$  VDC
- I/O isolation 5000 VACrms rated for  
250 VACrms working voltage
- Low leakage current
- Very high efficiency up to 90%



Single output
1: +Vin
2: -Vin
4: +Vout
5: -Vout
6: Trim
Dual output
1: +Vin
2: -Vin
4: +Vout
5: com.
6: -Vout



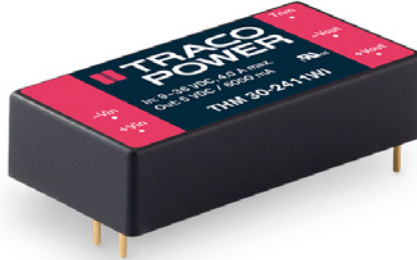
[www.tracopower.com/overview/thm20](http://www.tracopower.com/overview/thm20)    [www.tracopower.com/overview/thm20wi](http://www.tracopower.com/overview/thm20wi)

**THM 30(WI) Series**

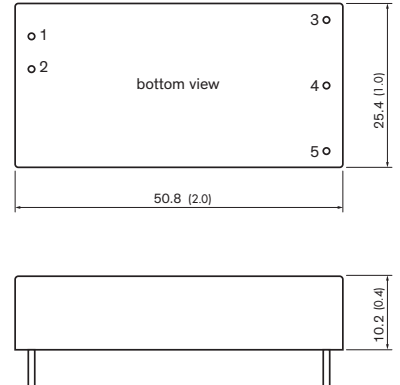
**NEW models**

**30 Watt DC/DC converter in 2" x 1" package**

- THM 30: 2:1 input voltage ranges:  
9-18, 18-36, 36-75  
THM 30WI: 4:1 input voltage ranges:  
9-36, 18-75
- Output voltages:  
5.0, 12, 15, 24 VDC adjust.  $\pm 10\%$   
 $\pm 5, \pm 12, \pm 15$  VDC
- I/O isolation 5000 VACrms rated for  
250 VACrms working voltage
- Low leakage current
- Very high efficiency up to 90%



- Single output  
1: +Vin  
2: -Vin  
4: +Vout  
5: -Vout  
6: Trim
- Dual output  
1: +Vin  
2: -Vin  
4: +Vout  
5: com.  
6: -Vout



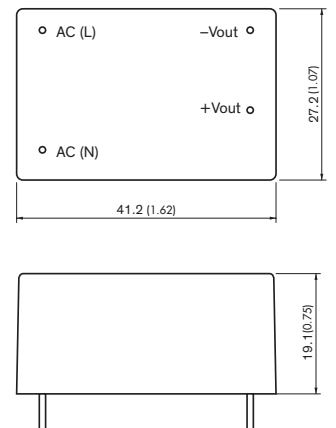
[www.tracopower.com/overview/thm30](http://www.tracopower.com/overview/thm30)    [www.tracopower.com/overview/thm30wi](http://www.tracopower.com/overview/thm30wi)

**AC/DC POWER SUPPLIES**

**TMF 05 Series**

**5 Watt AC/DC power module**

- Universal input 90-264 VAC and  
120-370 VDC
- Output voltages:  
5.0, 12, 15, 24 VDC
- Fully encapsulated ultra compact  
plastic casing for PCB mount
- Protection class II prepared
- Low leakage current <100  $\mu$ A
- Operating temperature range  
-25°C to 70°C.
- Input filter to meet EN55022 class B



[www.tracopower.com/overview/tmf05](http://www.tracopower.com/overview/tmf05)

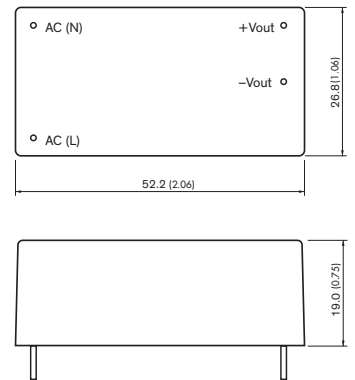
## TMF 10 Series

- Universal input 90-264 VAC and 120-370 VDC
- Output voltages: 5.0, 12, 15, 24 VDC
- Fully encapsulated ultra compact plastic casing for PCB mount
- Protection class II prepared
- Low leakage current <math>< 100 \mu\text{A}</math>
- Operating temperature range  $-25^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .
- Input filter to meet EN55022 class B



[www.tracopower.com/overview/tmf10](http://www.tracopower.com/overview/tmf10)

## 10 Watt AC/DC power module

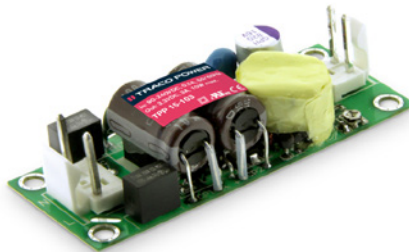


## TPP 15A Series

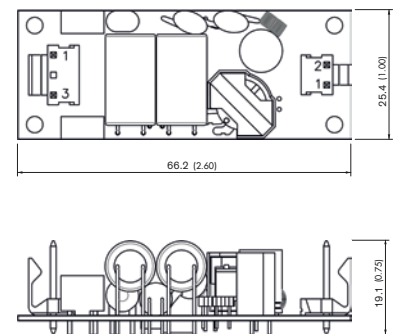
**NEW**

## 15 Watt AC/DC open frame power supply

- Universal input 90-264 VAC and 120-370 VDC
- Output voltages adjust  $\pm 10\%$ : 3.3, 5.0, 12, 15, 24, 48 VDC
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Operating temperature range  $-25^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .
- Input filter to meet EN55022 class B
- Package styles: encapsulated for PCB or chassis mount and open frame for PCB mount under design



[www.tracopower.com/overview/tpp15a](http://www.tracopower.com/overview/tpp15a)



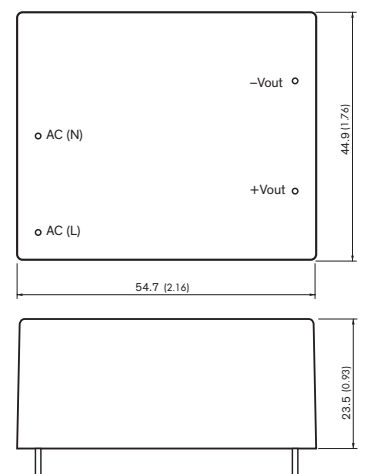
## TMF 20 Series

- Universal input 90-264 VAC and 120-370 VDC
- Output voltages: 5.0, 12, 15, 24 VDC
- Fully encapsulated ultra compact plastic casing for PCB mount
- Protection class II prepared
- Low leakage current  $< 100 \mu\text{A}$
- Operating temperature range  $-25^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .
- Input filter to meet EN55022 class B



[www.tracopower.com/overview/tmf20](http://www.tracopower.com/overview/tmf20)

## 20 Watt AC/DC power module



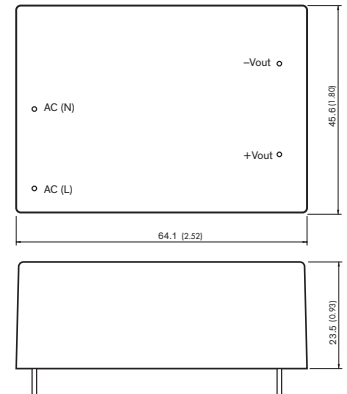
## TMF 30 Series

- Universal input 90-264 VAC and 120-370 VDC
- Output voltages: 5.0, 12, 15, 24 VDC
- Fully encapsulated ultra compact plastic casing for PCB mount
- Protection class II prepared
- Low leakage current <math>< 100 \mu\text{A}</math>
- Operating temperature range  $-25^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ .
- Input filter to meet EN55022 class B



[www.tracopower.com/overview/tmf30](http://www.tracopower.com/overview/tmf30)

## 30 Watt AC/DC power module

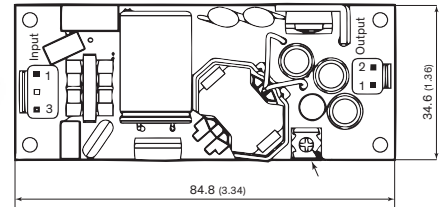
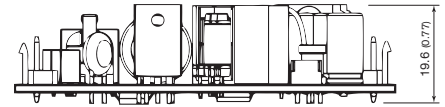
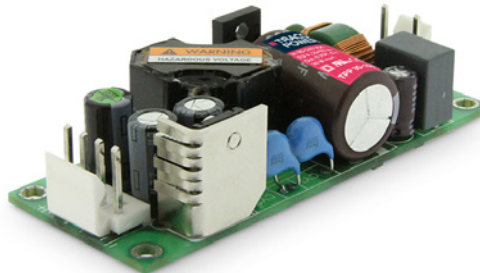


## TPP 30A Series

**NEW**

## 30 Watt AC/DC open frame power supply

- Universal input 90-264 VAC and 120-370 VDC
- Output voltages adjust  $\pm 10\%$ : 3.3, 5.0, 12, 15, 24, 48 VDC
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Operating temperature range  $-25^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .
- Input filter to meet EN55022 class B
- Package styles: encapsulated for PCB or chassis mount and open frame for PCB mount under design



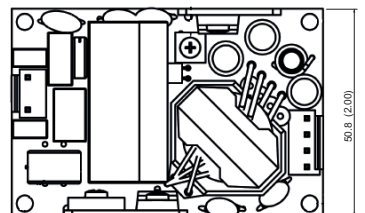
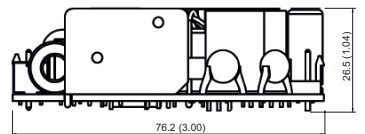
[www.tracopower.com/overview/tpp30a](http://www.tracopower.com/overview/tpp30a)

## TPP 40A Series

**NEW**

## 40 Watt AC/DC open frame power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages ( $V_{out1}$  adjust.  $\pm 10\%$ ) single: 5.0, 12, 24, 48 VDC
- Highest efficiency (ErP ready)
- Protection class I & II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: individual output voltage



[www.tracopower.com/overview/tpp40a](http://www.tracopower.com/overview/tpp40a)



## TPP 40 Series

## 40 Watt AC/DC metal enclosure power supply

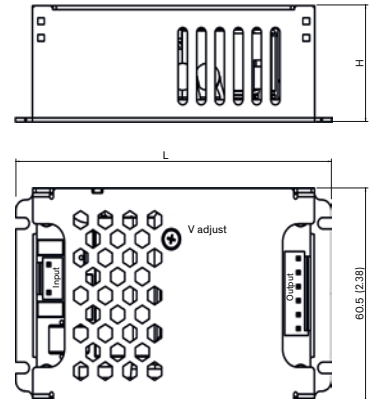
- Universal input 85-264 VAC and 120-370 VDC
- Output voltages (Vout1 adjust.  $\pm 10\%$ )  
single: 5.0, 12, 15, 24, 48 VDC  
dual: 12/5, 15/5, 24/5 VDC  
triple:  $\pm 12/5$ ,  $\pm 15/5$ , 24/5/12 VDC
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: DIN-rail, individual output voltages...



[www.tracopower.com/overview/tpp40](http://www.tracopower.com/overview/tpp40)

Single output  
L = 89.7 (3.53)  
H = 33.3 (1.31)

Multi output  
L = 102.4 (4.03)  
H = 34.3 (1.36)



## TPP 65A Series

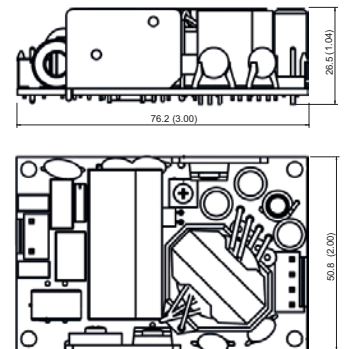
**NEW**

## 65 Watt AC/DC metal enclosure power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages (Vout1 adjust.  $\pm 10\%$ )  
single: 5.0, 12, 15, 24, 48 VDC  
dual: 12/5, 15/5, 24/5 VDC  
triple:  $\pm 12/5$ ,  $\pm 15/5$ , 24/5/12 VDC
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: individual output voltages...



[www.tracopower.com/overview/tpp65a](http://www.tracopower.com/overview/tpp65a)



## TPP 65 Series

## 65 Watt AC/DC metal enclosure power supply

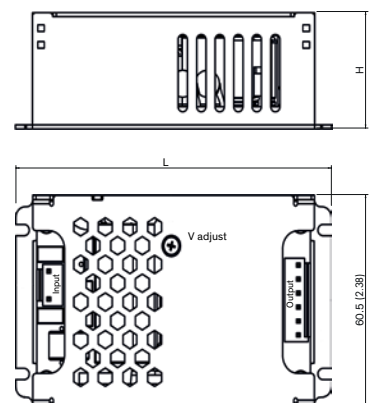
- Universal input 85-264 VAC and 120-370 VDC
- Output voltages (Vout1 adjust.  $\pm 10\%$ )  
single: 5.0, 12, 15, 24, 48 VDC  
dual: 12/5, 15/5, 24/5 VDC  
triple:  $\pm 12/5$ ,  $\pm 15/5$ , 24/5/12 VDC
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: Open frame, DIN-rail, individual output voltages...



[www.tracopower.com/overview/tpp65](http://www.tracopower.com/overview/tpp65)

Single output  
L = 89.7 (3.53)  
H = 33.3 (1.31)

Multi output  
L = 102.4 (4.03)  
H = 34.3 (1.36)

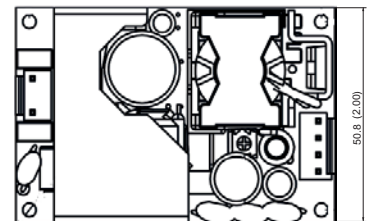
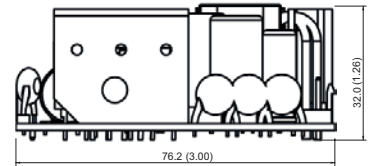


## TPP 100A Series

**NEW**

## 100 Watt AC/DC open frame power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: individual output voltages...

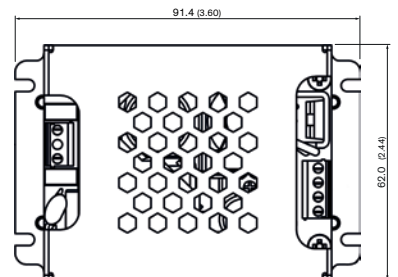
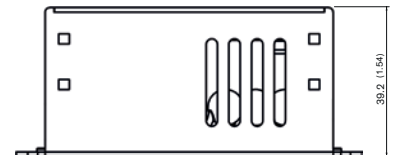


[www.tracopower.com/overview/tpp100a](http://www.tracopower.com/overview/tpp100a)

## TPP 100 Series

## 100 Watt AC/DC metal enclosure power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: DIN-rail, individual output voltages...



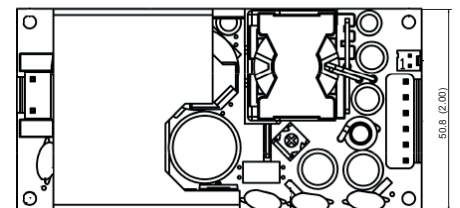
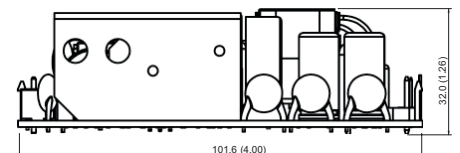
[www.tracopower.com/overview/tpp100](http://www.tracopower.com/overview/tpp100)

## TPP 150A Series

**NEW**

## 150 Watt AC/DC open frame power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: individual output voltages...



[www.tracopower.com/overview/tpp150a](http://www.tracopower.com/overview/tpp150a)

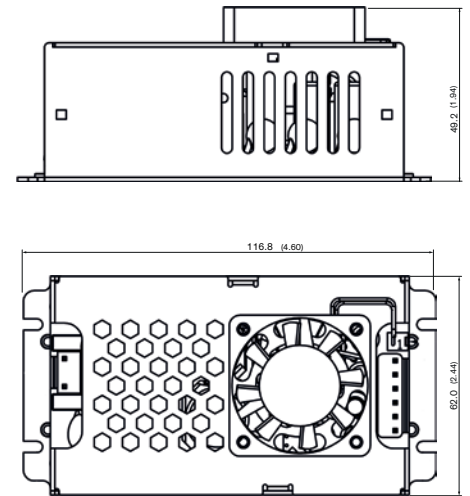
## TPP 150 Series

## 150 Watt AC/DC metal enclosure power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class II prepared
- Low leakage current  $< 75 \mu\text{A}$
- Optional: DIN-rail, individual output voltages...



[www.tracopower.com/overview/tpp150](http://www.tracopower.com/overview/tpp150)



## TPP 450A Series

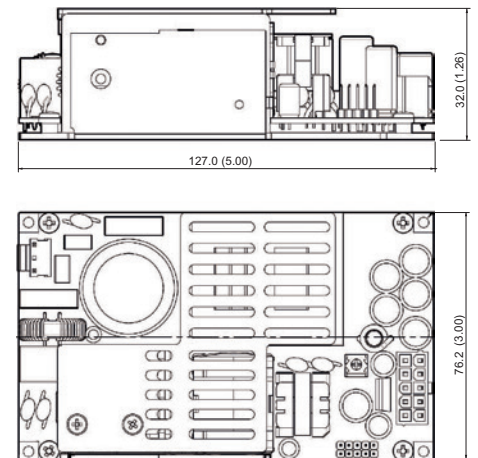
**NEW**

## 450 Watt AC/DC open frame power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48, 53 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class I
- Low leakage current  $< 100 \mu\text{A}$



[www.tracopower.com/overview/tpp450a](http://www.tracopower.com/overview/tpp450a)



## TPP 450 Series

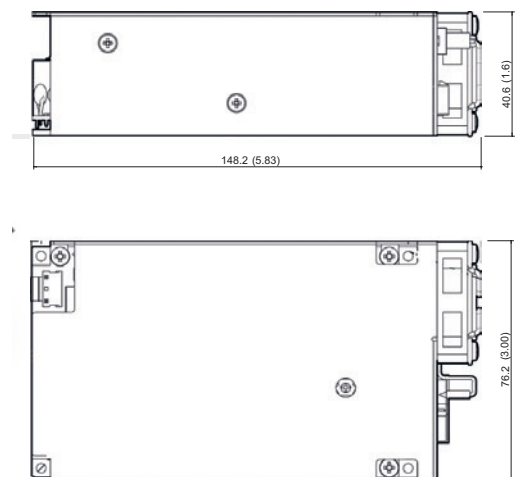
**NEW**

## 450 Watt AC/DC metal enclosure power supply

- Universal input 85-264 VAC and 120-370 VDC
- Output voltages adjustable  $\pm 10\%$ : 12, 15, 24, 28, 36, 48, 53 VDC
- Active power factor correction
- Highest efficiency (ErP ready)
- Protection class I
- Low leakage current  $< 100 \mu\text{A}$



[www.tracopower.com/overview/tpp450](http://www.tracopower.com/overview/tpp450)



TRACO POWER – dedicated to design and production of high quality, state-of-the-art AC/DC & DC/DC power conversion products for Industrial, Medical & Railway applications. Our mission is to provide optimal power supply solutions for specific applications with regard to performance, quality, cost and functionality.

TRACO POWER stocks an average of USD 15+ million in available finished goods inventory for immediate shipment through our distribution partners.

TRACO POWER offers extended product life-cycles, typically 10+ years, and our products are supported by a 3 or 5 year product warranty.

We understand our customers require a high quality solution as well as a diverse product offering, availability from stock, extended life-cycles and a strong commitment to quality in the form of extended warranty to support their business.

**International Office**

Traco Electronic AG  
Sihlbruggstrasse 111  
6340 Baar  
Switzerland

P +41 43 311 45 11  
F +41 43 311 45 45  
info@traco.ch

**German Office**

Traco Electronic GmbH  
Oskar-Messter-Str. 20a  
85737 Ismaning/München  
Germany

P +49 89 96 11 82-0  
F +49 89 96 11 82-20  
info@traco-electronic.de

**North America Office**

Traco Power North America, Inc.  
2025 Gateway Place #330  
San Jose, CA 95110  
USA

P +1 (408) 916-4570  
F +1 (408) 916-4571  
salesusa@tracopower.com

**Design & Development**

Traco Power Solutions Ltd.  
Whitemill Industrial Estate  
Whitemill Road, Wexford  
Y35 YH66, Ireland

P +353 53 9167 700  
F +353 53 9167 701  
info@tracopower-solutions.com