

### Features 200% Peak Power!

- ◆ 3-phase input 3AC 400V or 3AC 500V
- ◆ 200 % boost power for up to 5 seconds
- ◆ Alternative to AC transformers
- ◆ Fully regulated 24 VDC output with 10 A, 20 A or 40 A
- ◆ Rugged metal case design qualified for harsh industrial environment
- ◆ High efficiency >92%
- ◆ Operating temperature range: -25°C to +60°C (full power)
- ◆ Overload and over temperature protection
- ◆ Industrial safety approvals
- ◆ Cost effective design
- ◆ 3-year product warranty



The TRACOPOWER TSP-3P series of high performance DIN-rail power supplies offers an economical solution to generate a regulated DC voltage from three-phase mains networks. The smart design achieves a very high efficiency at ultra compact size and very competitive cost. The series provides models with 240, 480 and 960 Watt output power all with additional power reserve of up to 200%. This high peak power guarantees a reliable start-up of loads with high inrush currents such as motors, valves and other industrial loads. In many applications these switching power supplies can also replace mains transformers with rectifiers.

### Models

| Order Code          | Output Power (nom.) | Input Voltage (nom.) | Output Voltage (nom.) | *Output Current (nom.) |
|---------------------|---------------------|----------------------|-----------------------|------------------------|
| TSP 240-124-3PAC400 | 240 W               | 3 AC 400 V           | 24 VDC                | 10 A                   |
| TSP 240-124-3PAC500 |                     | 3 AC 500 V           | 24 VDC                | 10 A                   |
| TSP 480-124-3PAC400 | 480 W               | 3 AC 400 V           | 24 VDC                | 20 A                   |
| TSP 480-124-3PAC500 |                     | 3 AC 500 V           | 24 VDC                | 20 A                   |
| TSP 960-124-3PAC400 | 960 W               | 3 AC 400 V           | 24 VDC                | 40 A                   |
| TSP 960-124-3PAC500 |                     | 3 AC 500 V           | 24 VDC                | 40 A                   |

\* 200% peak current for up to 5 sec.

## Input Specifications

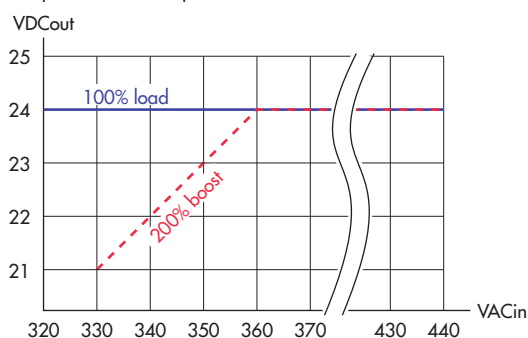
|                              |                                                                                                     |                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Input voltage range          | 400 VAC models: 320 – 440 VAC<br>500 VAC models: 400 – 550 VAC (derating below 410 VAC see graph 2) | star-net configuration (2-phase operation not possible) |
| Input voltage frequency      | 47 – 63 Hz                                                                                          |                                                         |
| Harmonic limits              | EN 61000-3-2, Class B (for <16 A per phase)                                                         |                                                         |
| Power factor                 | >0.8 at full load                                                                                   |                                                         |
| Recommended circuit breaker, | 6.0 A characteristic B                                                                              |                                                         |

## Output Specifications

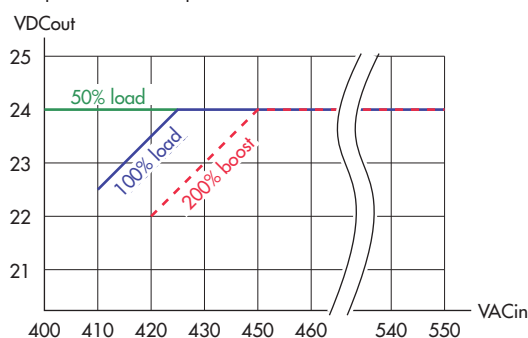
|                                       |                                                                                     |                                                                                                                         |
|---------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Output voltage:                       | 24 VDC (fixed)                                                                      |                                                                                                                         |
| Regulation                            | – Input / load variation                                                            | 1 % max. + voltage drop at low input voltage and/or boost power, see graph 1 & 2                                        |
| Boost power                           | – max. current<br>– duty cycle<br>– max. cycle time<br>– input voltage requirements | 200 % of nominal output current<br><10 %<br>5 sec limited by timer (automatic restart after 30 sec.)<br>see graph 1 & 2 |
| Ripple and noise<br>(20MHz bandwidth) | – nominal operation<br>– boost power operation                                      | 100 mV pk-pk typ.<br>up to 750 mV pk-pk                                                                                 |
| Rise time                             | 200 ms typ.                                                                         |                                                                                                                         |
| Current limitation                    | at 230 % of nominal output current, constant current                                |                                                                                                                         |
| Overvoltage protection                | 33 V typ.                                                                           |                                                                                                                         |
| Overtemperature protection            | switch off at overtemperature (automatic restart)                                   |                                                                                                                         |
| Power back immunity                   | 35 VDC continuous, 40 VDC for one second                                            |                                                                                                                         |

## Output Power Derating

Graph 1: 400 VAC input models



Graph 2: 500 VAC input models



## General Specifications

|                                                         |                                                                                      |                                                                                  |
|---------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Temperature range                                       | – Full power operation<br>– Max. operating<br>– Start up<br>– In accordance to UL508 | –25°C to +60°C<br>+70°C, 2.5 %/K derating above +60°C<br>–40°C<br>–25°C to +40°C |
| Cooling                                                 | convection cooling, no internal fan                                                  |                                                                                  |
| Humidity (non condensing)                               | 95 % rel. H max.                                                                     |                                                                                  |
| Reliability, calculated MTBF at +25°C acc. to IEC 61709 | – TSP 240 & 480<br>– TSP 960                                                         | >1 Mio h<br>>800'000 h                                                           |
| Isolation                                               | according to IEC/EN 60950-1, UL 60950-1, UL 508                                      |                                                                                  |
| Class of protection                                     | safety class I (IEC 536)                                                             |                                                                                  |
| Degree of protection                                    | IP 20 (IEC/EN 60529)                                                                 |                                                                                  |

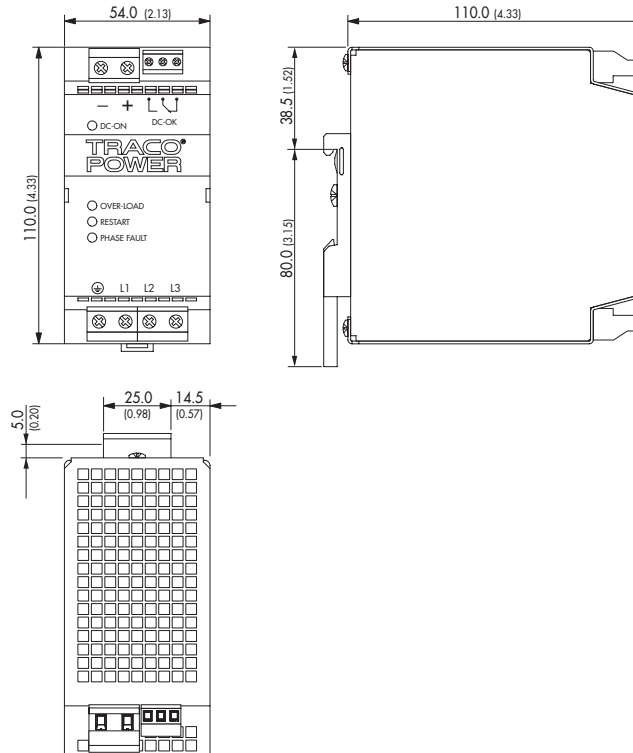
## General Specifications

|                                                |                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic compatibility (EMC), Emissions | EN 61000-6-3<br>– Conducted RI suppression on input<br>– Radiated RI suppression                                                                                                                                                                                                                                                                         | EN 55011 class B, EN 55022 class B,<br>EN 55011 class B, EN 55022 class B,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Electromagnetic compatibility (EMC), Immunity  | EN 61000-6-2<br>– Electrostatic discharge (ESD)<br>– Radiated RF field immunity<br>– Electrical fast transient      burst immunity input<br>burst immunity output<br>– Surge immunity      L – L<br>L – PE<br>+ Output – - Output<br>+ Output – PE<br>– Output – PE<br>– Immunity to conducted RF disturbances<br>– Mains voltage dips and interruptions | IEC/EN 61000-4-2      8 kV / 15 kV      criteria tba<br>IEC/EN 61000-4-3      10 V/m      criteria tba<br>IEC/EN 61000-4-4      4 kV      criteria tba<br>IEC/EN 61000-4-4      2 kV      criteria tba<br>IEC/EN 61000-4-5      2 kV      criteria tba<br>IEC/EN 61000-4-5      4 kV      criteria tba<br>IEC/EN 61000-4-5      0.5 kV      criteria tba<br>IEC/EN 61000-4-5      0.5 kV      criteria tba<br>IEC/EN 61000-4-5      0.5 kV      criteria tba<br>IEC/EN 61000-4-6      10 V      criteria tba<br>IEC/EN 61000-4-11                                                                                                                                    |
| Safety standards                               | – Information technology equipment<br>– Industrial control equipment<br>– Equipment for use in explosive atmospheres<br>– Electrical equipment for machines<br>– Electronic equipment for power installations<br>– Safety of power transformers                                                                                                          | IEC/EN 60950-1, UL 60950-1<br>UL 508 listed, CSA C22.2 No. 107.1<br>ATEX 94/9/EC<br>EN 60204<br>EN 50178<br>EN 61558-2-16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Safety approvals and                           | – CB report for IEC 60950-1<br>– SIQ certificate for EN 60950-1<br>–  II 3G Ex nA nC IIC T3<br>– UL approvals for UL 508 listed<br>– Curtis-Straus certificate for UL 60950-1 (2nd)<br>– Bureau Veritas for other standards                                           | <a href="http://www.tracopower.com/products/tsp3p-cb.pdf">www.tracopower.com/products/tsp3p-cb.pdf</a><br><a href="http://www.tracopower.com/products/tsp3p-siq.pdf">www.tracopower.com/products/tsp3p-siq.pdf</a><br><a href="http://www.tracopower.com/products/tsp3p-atex.pdf">www.tracopower.com/products/tsp3p-atex.pdf</a><br><a href="http://www.tracopower.com/products/tsp3p-ul508.pdf">www.tracopower.com/products/tsp3p-ul508.pdf</a><br><a href="http://www.tracopower.com/products/tsp3p-ul.pdf">www.tracopower.com/products/tsp3p-ul.pdf</a><br><a href="http://www.tracopower.com/products/tsp3p-bv.pdf">www.tracopower.com/products/tsp3p-bv.pdf</a> |
| Environmental compliance                       | – Reach<br>– RoHS                                                                                                                                                                                                                                                                                                                                        | <a href="http://www.tracopower.com/products/tsp3p-reach.pdf">www.tracopower.com/products/tsp3p-reach.pdf</a><br>RoHS directive 2002/95/EC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Environment                                    | – Vibration acc. IEC 60068-2-6;<br>– Shock acc. IEC 60068-2-27                                                                                                                                                                                                                                                                                           | 0.075 mm / 10 – 55 Hz,<br>11ms / 15 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Status signals                                 | – DC-OK relay contact<br><br>– DC-OK indication<br>– Phase error indication<br><br>– Overload / Overtemperature<br><br>– Automatic restart indication                                                                                                                                                                                                    | DC OK = contact closed at >20...22 VDC<br>rated: 30 VDC/1.0 A for 24 VDC models<br><b>green LED at &gt;20...22 VDC</b><br><b>red blinking LED if one or two phases are missing</b><br>(function only if earth is connected)<br>red LED on at >100% nominal load (5 sec. count down<br>for boost power is activated)<br>red blinking LED at temperature shut down (manual<br>restart required - mains disconnect for 5 sec.)<br>red blinking LED during overload recovery periode                                                                                                                                                                                     |
| Enclosure material                             |                                                                                                                                                                                                                                                                                                                                                          | aluminium (chassis) / stainless steel (cover)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Mounting                                       | – DIN-rail mounting<br><br>– Wall mounting (option)                                                                                                                                                                                                                                                                                                      | for DIN-rails as per EN 50022-35x15/7.5<br>(snap-on with self-locking spring)<br><b>with wall mounting bracket</b> - see page 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Connection                                     |                                                                                                                                                                                                                                                                                                                                                          | screw terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Installation instructions                      |                                                                                                                                                                                                                                                                                                                                                          | <a href="http://www.tracopower.com/products/tsp3p-inst.pdf">www.tracopower.com/products/tsp3p-inst.pdf</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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

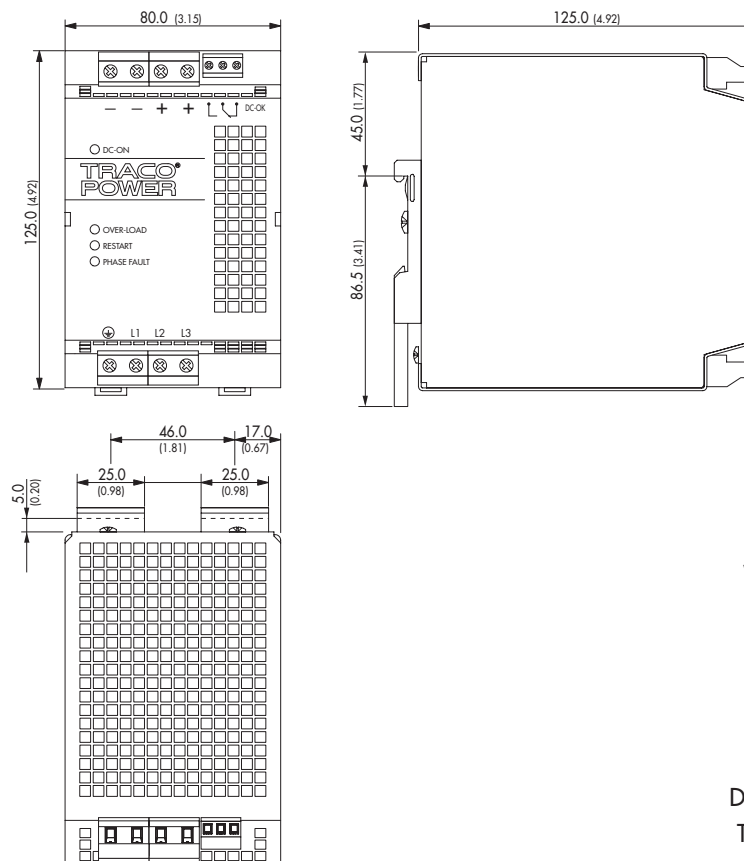
## Outline Dimensions

### 240 Watt models



**Weight:** 575 g (1.27 lb)

### 480 Watt models

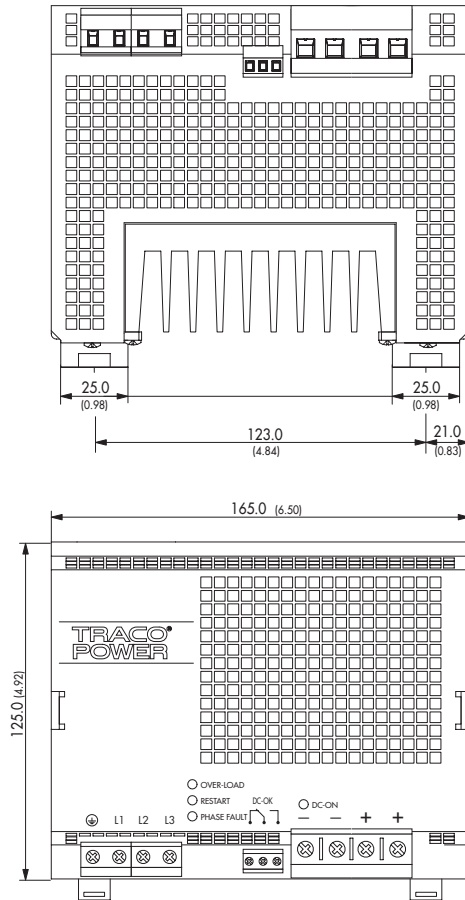


**Weight:** 1.05 kg (2.31 lb)

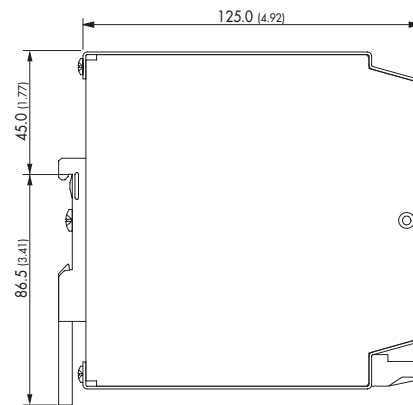
Dimensions in [mm], ( ) = Inch  
Tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )

## Outline Dimensions

### 960 Watt models



**Weight:** 2.35 kg (5.19 lb)

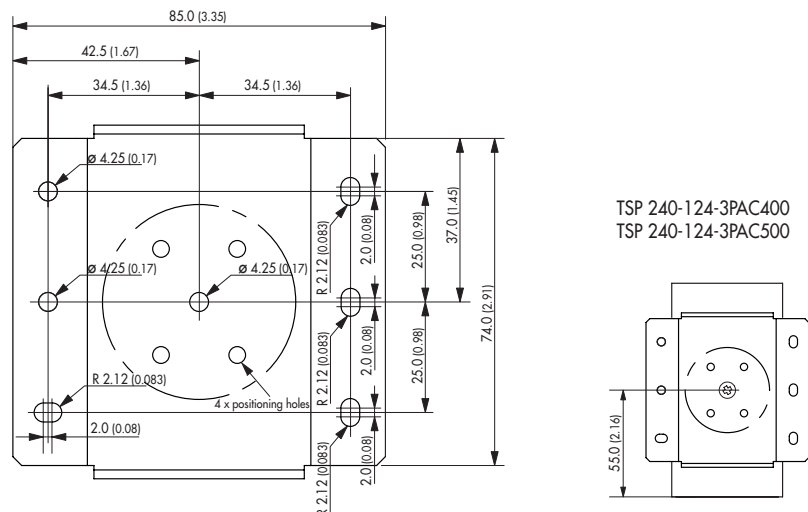


Dimensions in [mm], ( ) = Inch  
Tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )

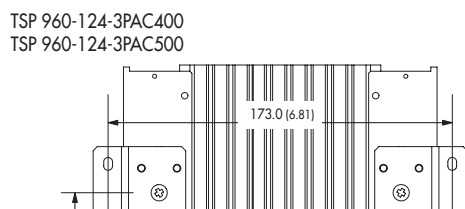
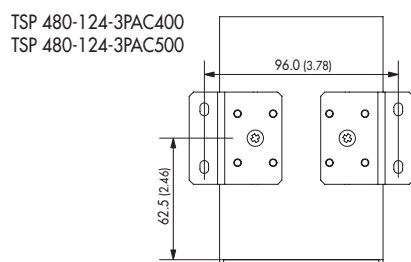
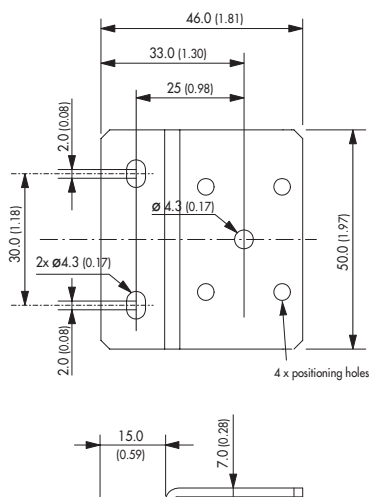
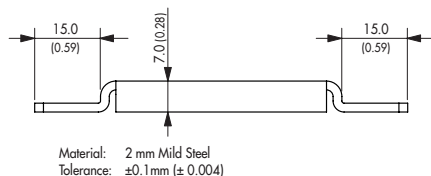
## TSP-WMK Wall Mounting Bracket

| Order code | For models    | Content of kit |
|------------|---------------|----------------|
| TSP-WMK03  | 240 W         | 1 bracket      |
| TSP-WMK02  | 480 W & 960 W | 2 brackets     |

### TSP-WMK03



### TSP-WMK02



Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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