

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

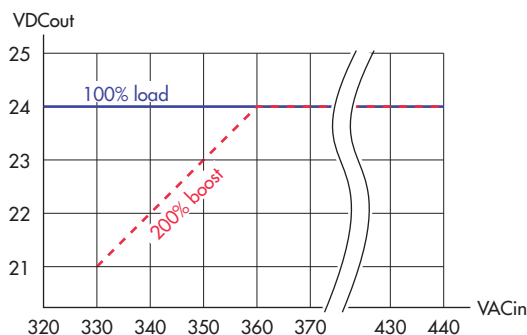
| | | |
|------------------------------|---|---|
| Input voltage range | 400 VAC models: 320 – 440 VAC 500 VAC models: 400 – 550 VAC (derating below 410 VAC see graph 2) | star-net configuration (2-phase operation not possible) |
| Input voltage frequency | 47 – 63 Hz | |
| Harmonic limits | EN 61000-3-2,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

Output Specifications

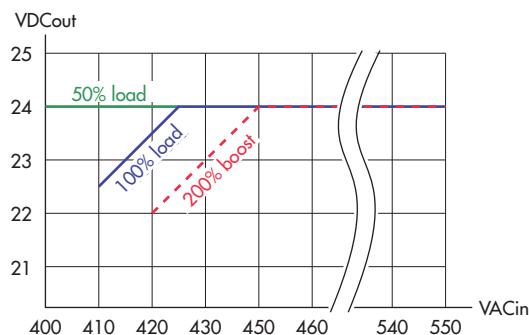
| | | |
|---------------------------------------|---|---|
| Output voltage: | 24 VDC (fixed) | |
| Regulation | – Input / load variation | 1 % max. + voltage drop at low input voltage and/or boost power, see graph 1 & 2 |
| Boost power | – max. current – duty cycle – max. cycle time – input voltage requirements | 200 % of nominal output current <10 % 5 sec limited by timer (automatic restart after 30 sec.) see graph 1 & 2 |
| Ripple and noise (20MHz bandwidth) | – nominal operation – boost power operation | 100 mV pk-pk typ. 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 – Max. operating – Start up – In accordance to UL508 | –25°C to +60°C +70°C, 2.5 %/K derating above +60°C –40°C –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 – TSP 960 | >1 Mio h >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) | |

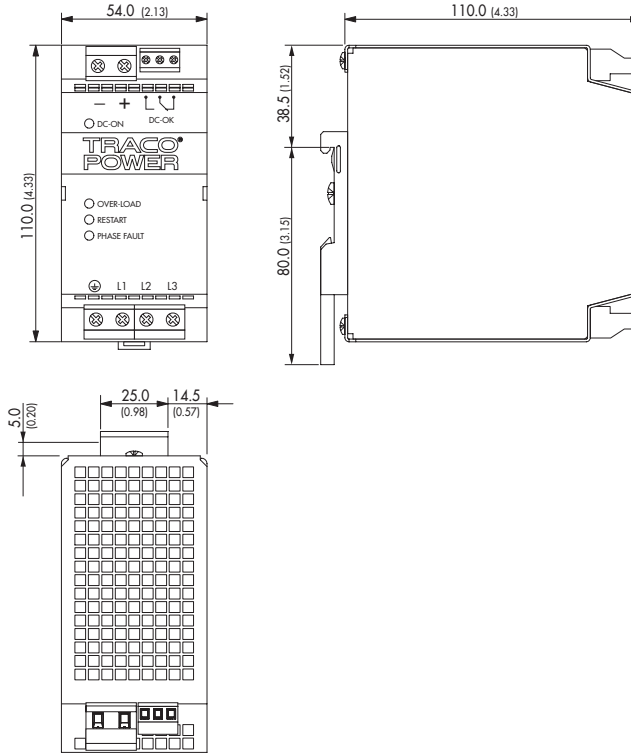
General Specifications

| | | |
|--|--|--|
| Electromagnetic compatibility (EMC), Emissions | <ul style="list-style-type: none"> – Conducted RI suppression on input – Radiated RI suppression | <p>EN 61000-6-3 EN 55011 class B, EN 55022 class B, EN 55011 class B, EN 55022 class B,</p> |
| Electromagnetic compatibility (EMC), Immunity | <ul style="list-style-type: none"> – Electrostatic discharge (ESD) – Radiated RF field immunity – Electrical fast transient <ul style="list-style-type: none"> burst immunity input burst immunity output – Surge immunity <ul style="list-style-type: none"> L – L L – PE + Output – - Output + Output – PE – Output – PE – Immunity to conducted RF disturbances – Mains voltage dips and interruptions | <p>EN 61000-6-2 IEC/EN 61000-4-2 8 kV / 15 kV criteria tba IEC/EN 61000-4-3 10 V/m criteria tba IEC/EN 61000-4-4 4 kV criteria tba IEC/EN 61000-4-4 2 kV criteria tba IEC/EN 61000-4-5 2 kV criteria tba IEC/EN 61000-4-5 4 kV criteria tba IEC/EN 61000-4-5 0.5 kV criteria tba IEC/EN 61000-4-5 0.5 kV criteria tba IEC/EN 61000-4-5 0.5 kV criteria tba IEC/EN 61000-4-6 10 V criteria tba IEC/EN 61000-4-11</p> |
| Safety standards | <ul style="list-style-type: none"> – Information technology equipment – Industrial control equipment – Equipment for use in explosive atmospheres – Electrical equipment for machines – Electronic equipment for power installations – Safety of power transformers | <p>IEC/EN 60950-1, UL 60950-1 UL 508 listed, CSA C22.2 No. 107.1 ATEX 94/9/EC EN 60204 EN 50178 EN 61558-2-16</p> |
| Safety approvals and | <ul style="list-style-type: none"> – CB report for IEC 60950-1 – SIQ certificate for EN 60950-1 –  II3G Ex nA nC IIC T3 – UL approvals for UL 508 listed – Curtis-Straus certificate for UL 60950-1 (2nd) – Bureau Veritas for other standards | <p>www.tracopower.com/products/tsp3p-cb.pdf www.tracopower.com/products/tsp3p-siq.pdf www.tracopower.com/products/tsp3p-atex.pdf www.tracopower.com/products/tsp3p-ul508.pdf www.tracopower.com/products/tsp3p-ul.pdf www.tracopower.com/products/tsp3p-bv.pdf</p> |
| Environmental compliance | <ul style="list-style-type: none"> – Reach – RoHS | <p>www.tracopower.com/products/tsp3p-reach.pdf RoHS directive 2002/95/EC</p> |
| Environment | <ul style="list-style-type: none"> – Vibration acc. IEC 60068-2-6; – Shock acc. IEC 60068-2-27 | <p>0.075 mm / 10 – 55 Hz, 11ms / 15 g</p> |
| Status signals | <ul style="list-style-type: none"> – DC-OK relay contact – DC-OK indication – Phase error indication – Overload / Overtemperature – Automatic restart indication | <p>DC OK = contact closed at >20...22 VDC rated: 30 VDC/1.0 A for 24 VDC models green LED at >20...22 VDC red blinking LED if one or two phases are missing (function only if earth is connected) red LED on at >100% nominal load (5 sec. count down for boost power is activated) red blinking LED at temperature shut down (manual restart required - mains disconnect for 5 sec.) red blinking LED during overload recovery periode</p> |
| Enclosure material | | <p>aluminium (chassis) / stainless steel (cover)</p> |
| Mounting | <ul style="list-style-type: none"> – DIN-rail mounting – Wall mounting (option) | <p>for DIN-rails as per EN 50022-35x15/7.5 (snap-on with self-locking spring) with wall mounting bracket - see page 6</p> |
| Connection | | <p>screw terminals</p> |
| Installation instructions | | <p>www.tracopower.com/products/tsp3p-inst.pdf</p> |

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

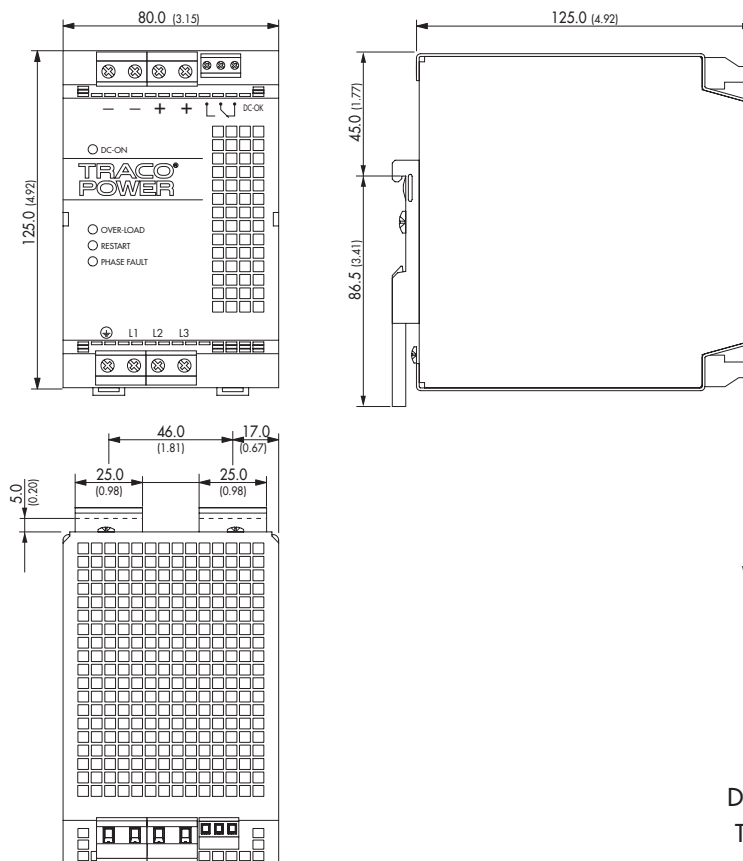
Outline Dimensions

240 Watt models



Weight: 575 g (1.27 lb)

480 Watt models

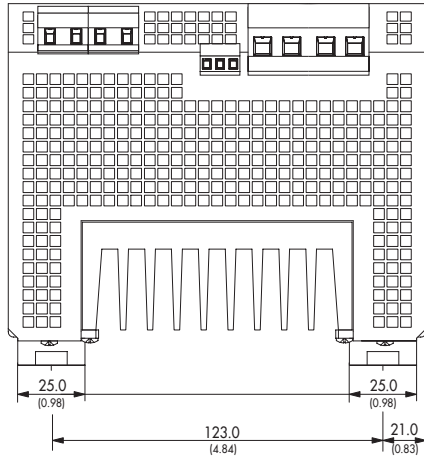


Weight: 1.05 kg (2.31 lb)

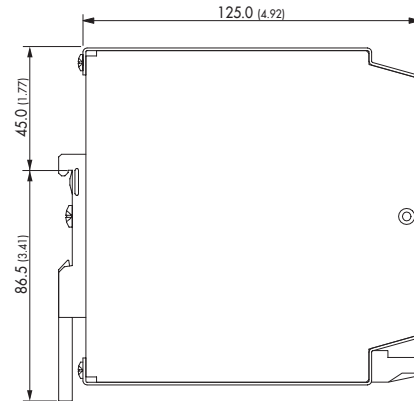
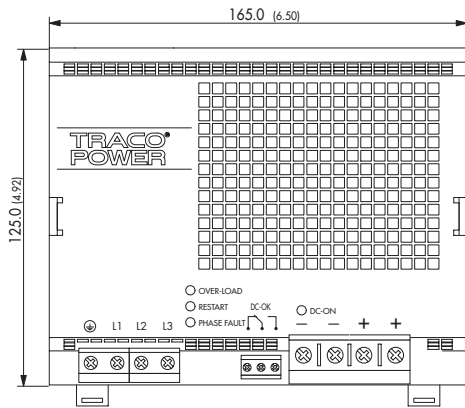
Dimensions in [mm], () = Inch
Tolerances: ±0.5 mm (±0.02)

Outline Dimensions

960 Watt models



Weight: 2.35 kg (5.19 lb)

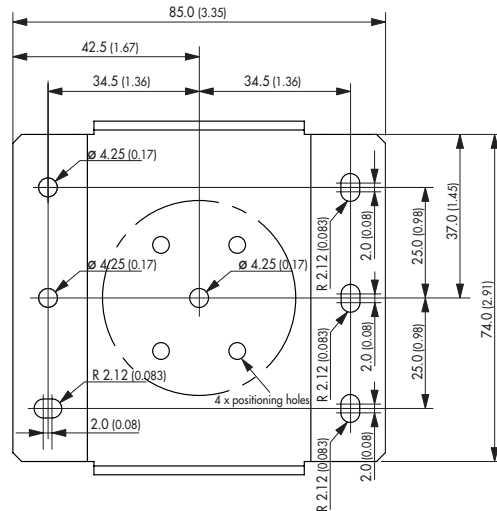


Dimensions in [mm], () = Inch
Tolerances: ±0.5 mm (±0.02)

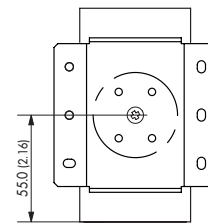
TSP-WMK Wall Mounting Bracket

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

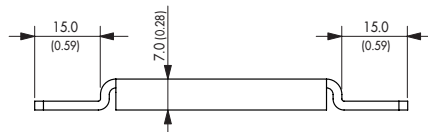
TSP-WMK03



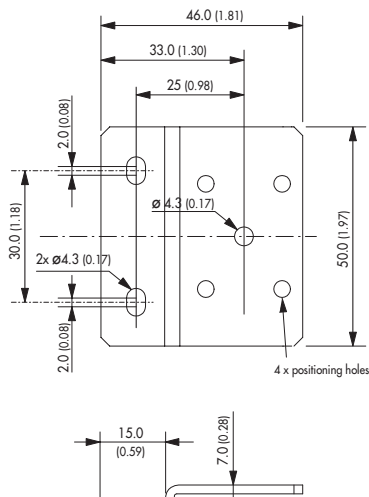
TSP 240-124-3PAC400
TSP 240-124-3PAC500



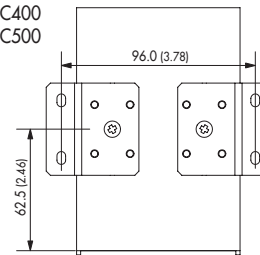
TSP-WMK02



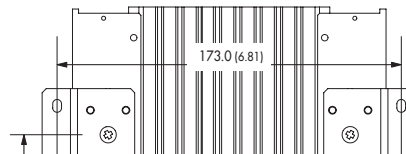
Material: 2 mm Mild Steel
Tolerance: ±0.1mm (±0.004)



TSP 480-124-3PAC400
TSP 480-124-3PAC500



TSP 960-124-3PAC400
TSP 960-124-3PAC500



Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com