Industrial Power Supplies

TSP-3P Series, 240–960 Watt

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

EMC LVD | IEC 60950-1 | UL 60950-1 | EN 60950-1 EN 61558-2-16 EN 60204 | UL 508 | ATEX II3G

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

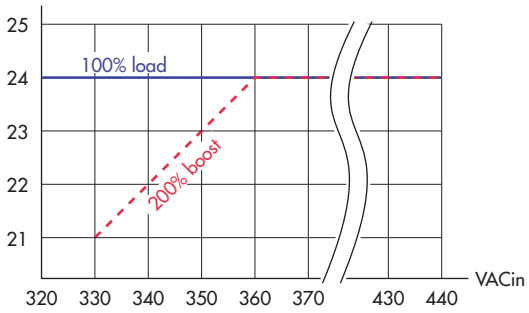
Input voltage range		**star-net configuration** (2-phase operation not possible)
	400 VAC models:	**320 – 440 VAC**
	500 VAC models:	**400 – 550 VAC** (derating below 410 VAC see graph 2)
Input voltage frequency		**47 – 63 Hz**
Harmonic limits		**EN 61000-3-2, Class B** (for <16 A per phase)
Power factor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

Output Specifications

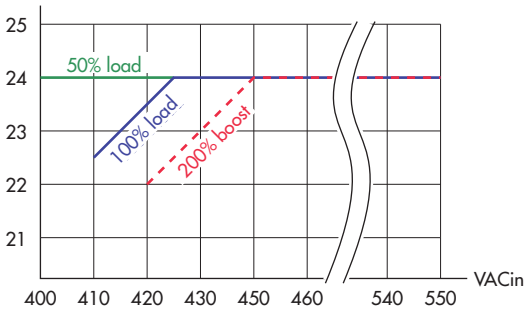
Output voltage:		**24 VDC** (fixed)
Regulation	– Input / load variation	**1 % max.** + voltage drop at low input voltage and/or boost power, see graph 1 & 2
Boost power	– max. current – duty cycle – max. cycle time – input voltage requirements	**200 % of nominal output current** **<10 %** **5 sec limited 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 continuouse, 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)

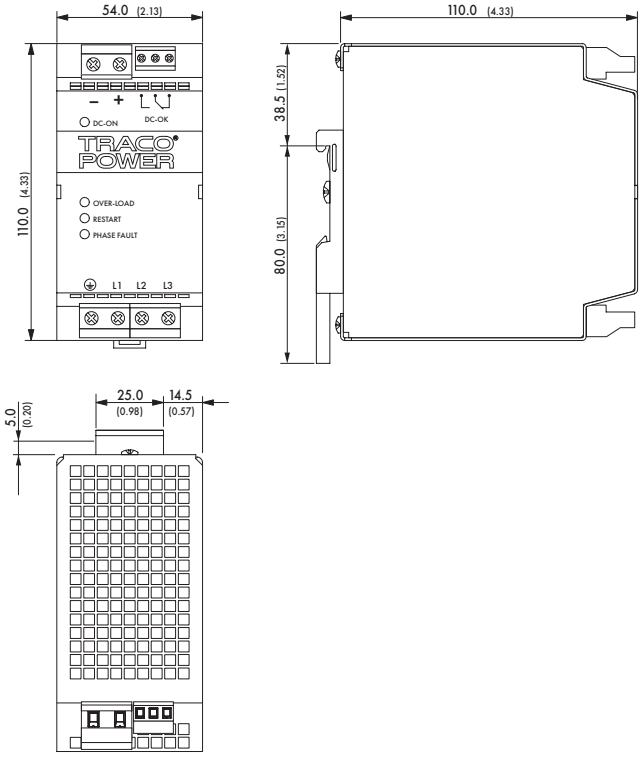
General Specifications

Electromagnetic compatibility (EMC), Emissions		**EN 61000-6-3**		
	– Conducted RI suppression on input	**EN 55011 class B, EN 55022 class B,**		
	– Radiated RI suppression	**EN 55011 class B, EN 55022 class B,**		
Electromagnetic compatibility (EMC), Immunity		**EN 61000-6-2**		
	– Electrostatic discharge (ESD)	**IEC/EN 61000-4-2**	**8 kV / 15 kV**	**criteria tba**
	– Radiated RF field immunity	**IEC/EN 61000-4-3**	**10 V/m**	**criteria tba**
	– Electrical fast transient burst immunity input	**IEC/EN 61000-4-4**	**4 kV**	**criteria tba**
	burst immunity output	**IEC/EN 61000-4-4**	**2 kV**	**criteria tba**
	– Surge immunity L – L	**IEC/EN 61000-4-5**	**2 kV**	**criteria tba**
	L – PE	**IEC/EN 61000-4-5**	**4 kV**	**criteria tba**
	+ Output – - Output	**IEC/EN 61000-4-5**	**0.5 kV**	**criteria tba**
	+ Output – PE	**IEC/EN 61000-4-5**	**0.5 kV**	**criteria tba**
	– Output – PE	**IEC/EN 61000-4-5**	**0.5 kV**	**criteria tba**
	– Immunity to conducted RF disturbances	**IEC/EN 61000-4-6**	**10 V**	**criteria tba**
	– Mains voltage dips and interruptions	**IEC/EN 61000-4-11**		
Safety standards	– Information technology equipment	**IEC/EN 60950-1, UL 60950-1**		
	– Industrial control equipment	**UL 508 listed, CSA C22.2 No. 107.1**		
	– Equipment for use in explosive atmospheres	**ATEX 94/9/EC**		
	– Electrical equipment for machines	**EN 60204**		
	– Electronic equipment for power installations	**EN 50178**		
	– Safety of power transformers	**EN 61558-2-16**		
		(When operating in ex environments such as ATEX, Hazloc, etc.: Check certification documents for special conditions for safe use.)		
Safety approvals and		**CB report for IEC 60950-1**		
		SIQ certificate for EN 60950-1		
		Ⓔx 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		
	– Certification documents	www.tracopower.com/overview/tsp-3p		
Environmental compliance	– Reach	www.tracopower.com/info/reach-declaration.pdf		
	– RoHS	**RoHS directive 2002/95/EC**		
Environment	– Vibration acc. IEC 60068-2-6;	**0.075 mm / 10 – 55 Hz,**		
	– Shock acc. IEC 60068-2-27	**11ms / 15 g**		
Status signals	– DC-OK relay contact	**DC OK = contact closed at >20...22 VDC**		
		rated: 30 VDC/1.0 A for 24 VDC models		
	– DC-OK indication	**green LED at >20...22 VDC**		
	– Phase error indication	**red blinking LED if one or two phases are missing**		
		(function only if earth is connected)		
	– Overload / Overtemperature	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.)		
	– Automatic restart indication	red blinking LED during overload recovery periode		
Enclosure material		**aluminium** (chassis) **/ stainless steel** (cover)		
Mounting	– DIN-rail mounting	**for DIN-rails as per EN 50022-35x15/7.5**		
		(snap-on with self-locking spring)		
	– Wall mounting (option)	**with wall mounting bracket** - see page 6		
Connection		**screw terminals**		
Installation instructions		www.tracopower.com/overview/tsp-3p		

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

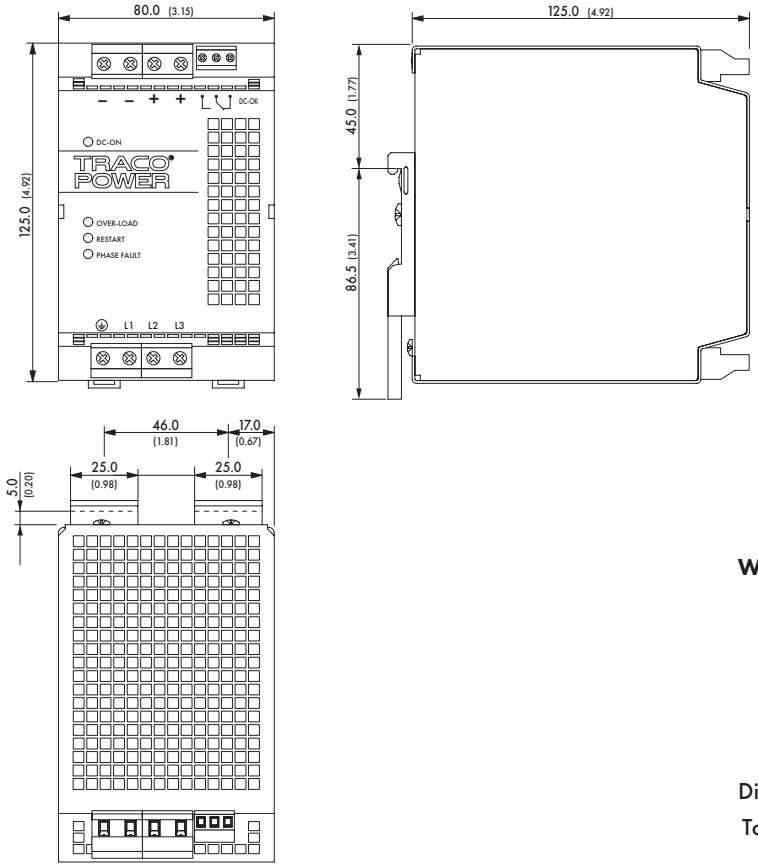
Outline Dimensions

240 Watt models



Weight: 575 g (1.27 lb)

480 Watt models

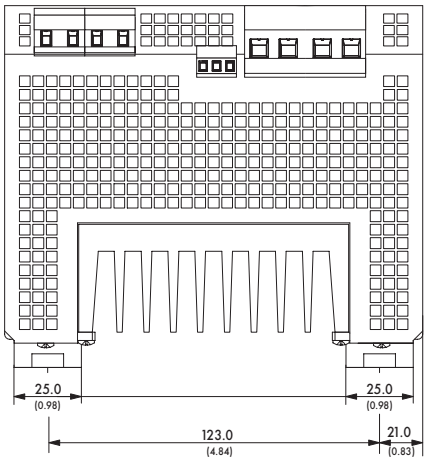


Weight: 1.05 kg (2.31 lb)

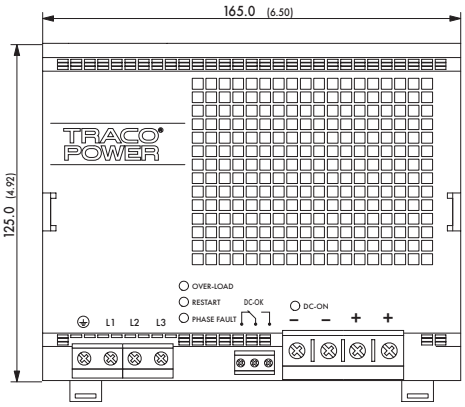
Dimensions in [mm], ( ) = Inch
Tolerances: ±0.5 mm (±0.02)

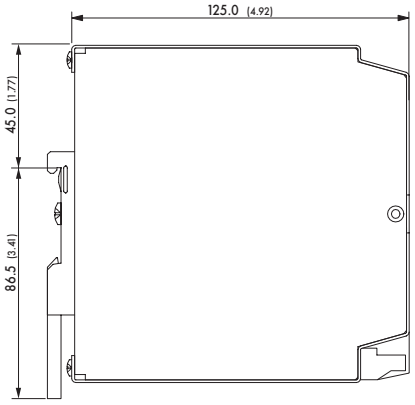
Outline Dimensions

960 Watt models



Weight: 2.35 kg (5.19 lb)



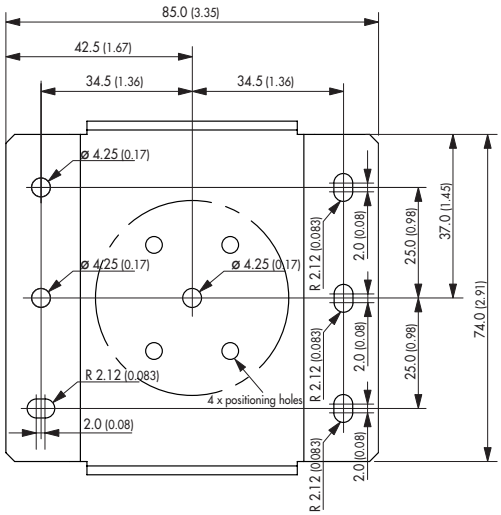


Dimensions in [mm], ( ) = Inch
Tolerances: ±0.5 mm (±0.02)

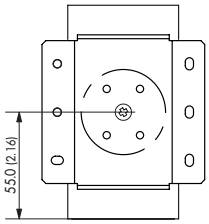
TSP–WMK Wall Mounting Bracket

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

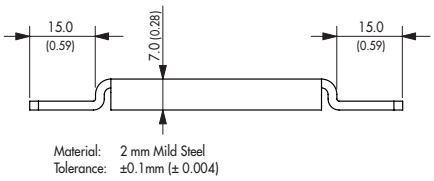
TSP-WMK03

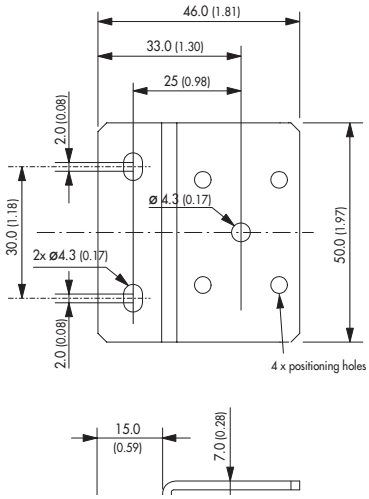


TSP 240-124-3PAC400
TSP 240-124-3PAC500

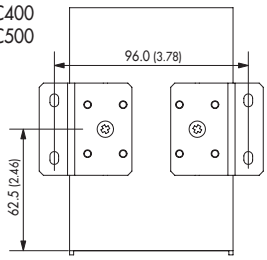


TSP-WMK02





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



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