

## INSTALLATION INSTRUCTIONS

### TSP Series

### Industrial Power Supply

Order Code	*Input Voltage Range	Rated Output Power	Rated Output	** DC-Output Voltage	Recommended Circuit Breaker (Characteristic B)
TSP 070-112	Rated: 115-240Vac 50-60Hz Operation: 85-264Vac 47-63Hz	72 Watt	12.0VDC / 6.0A	12.0 – 14.0VDC	6 - 16A
TSP 090-124		90 Watt	24.0VDC / 3.75A	24.0 – 28.0VDC	
TSP 090-124N		90 Watt	24.0VDC / 3.75A	24.0 – 28.0VDC	
TSP 090-148		96 Watt	48.0VDC / 2.00A	48.0 – 56.0VDC	
TSP 140-112	Rated: 115-230Vac 47-63Hz Autorange Operation: 85-132Vac 187-264Vac 47-63Hz	144 Watt	12.0VDC / 12.0A	12.0 – 14.0VDC	10 - 16A
TSP 180-124		180 Watt	24.0VDC / 7.5A	24.0 – 28.0VDC	
TSP 180-148		192 Watt	48.0VDC / 4.00A	48.0 – 56.0VDC	
TSP 360-124		360 Watt	24.0VDC / 15.0A	24.0 – 28.0VDC	
TSP 360-148		360 Watt	48.0VDC / 7.50A	48.0 – 56.0VDC	16 – 25A
TSP 600-124		600 Watt	24.0VDC / 25.0A	24.0 – 28.0VDC	
TSP 600-136		600 Watt	36.0VDC / 16.5A	36.0 – 42.0VDC	
TSP 600-148		600 Watt	48.0VDC / 12.5A	48.0 – 56.0VDC	

\* Observe output power derating at operation below an input voltage of 110VAC

\*\* The Output is adjustable by potentiometer with an insulated screwdriver. If the output voltage is higher than nominal, the maximum output current should be reduced. (See output power derating below)

Order Code	Rated Input Current		Order Code	Rated Input Current	
	@ Vin=115VAC	@ Vin=230VAC		@ Vin=115VAC	@ Vin=230VAC
➤ TSP 070	2.0A	1.0A	➤ TSP 180	4.0A	2.0A
➤ TSP 090	2.1A	1.0A	➤ TSP 360	6.0A	3.0A
➤ TSP 140	4.0A	2.0A	➤ TSP 600	10.0A	5.0A

Operating temperature range (With natural Air Convection Cooling)	-25°C – +70°C max					
Output Power Derating: above +40°C up to +60°C	TSP 070-112	➔	0.6 <sup>W</sup> /K	TSP 180-148	➔	3.6 <sup>W</sup> /K
	TSP 090-124(N)	➔	1.5 <sup>W</sup> /K	TSP 360-1xx	➔	6.0 <sup>W</sup> /K
above +60°C up to +70°C	TSP 090-148	➔	1.8 <sup>W</sup> /K	TSP 600-1xx	➔	6.0 <sup>W</sup> /K
	TSP 140-112	➔	1.2 <sup>W</sup> /K			
	TSP 180-124	➔	3.0 <sup>W</sup> /K			
	TSP 070-112	➔	2.0 <sup>W</sup> /K	TSP 360-1xx	➔	8.0 <sup>W</sup> /K
	TSP 090-1xx	➔	2.0 <sup>W</sup> /K	TSP 600-124	➔	16.0 <sup>W</sup> /K
	TSP 140-112	➔	4.0 <sup>W</sup> /K	TSP 600-136	➔	16.0 <sup>W</sup> /K
	TSP 180-1xx	➔	4.0 <sup>W</sup> /K	TSP 600-148	➔	12.0 <sup>W</sup> /K
Output Power Derating below 110Vac	2%/V					
Storage temperature range	-25°C – +85°C max					
Parallel Operation	Up to 5 power supplies possible. User selectable standard mode and parallel mode by jumper on PCB.					
Input & Output Connector	Use copper wire: 1mm <sup>2</sup> - 3mm <sup>2</sup> (AWG17...12) For TSP600, use copper wire : 1.5mm <sup>2</sup> - 4mm <sup>2</sup> (AWG16...10) Screw tightening torque: 0.5Nm (max.)					
Signal Connector	Crimp Terminal Housing: Molex KK-22-01-3027 Crimp Terminal: Molex KK-08-50-0032 Wire Size: 0.06mm <sup>2</sup> – 0.3mm <sup>2</sup> (AWG30...22)					
Case material	Aluminium (chassis) and Zinc-plated steel (cover)					
Mounting Position	Vertical on DIN rail, optimal cooling performance must be observed. Leave a free space of minimum 50mm (2in.) above and below the power supply.					

## Safety Instructions:

- Before installation read these instructions carefully and completely. This installation instruction cannot account for every possible condition of installation, operation or maintenance. Further information can be obtained from your local distributor office or from the product datasheet, which can be downloaded from our website: <http://www.tracopower.com/overview/tsp/>. More detailed information you will find at our Instruction Manual, which can also be downloaded from our website: <http://www.tracopower.com/products/tsp-inst.pdf>
- The mains supply voltage connection, must be in accordance to IEC 62103, EN 50178 and IEC 60364, VDE 100.
- Before any installation, maintenance or modification work ensure that the main switch is switched off and prevented from being switched on again. Non-observance, touching of any live components or improper handling of this power supply can result in death, severe personal injury or substantial property damage. Proper and safe operation is dependent on proper storage, handling, installation and operation.
- Compliance with the relevant national regulations (in the USA, Europe and other countries) must be ensured. Before operation is started the following conditions must be ensured:
  - ❖ Connection to mains supply in compliance with national regulations (e.g. VDE0100 and EN50178).
  - ❖ By use of stranded wires, all strands must be fastened in the terminal blocks. (Potential danger of contact with the case)
  - ❖ Power supply and mains cables must be sufficiently fused.
  - ❖ Degree of protection = I according to IEC536. The non-fused protective earth connection must be connected to the FG terminal (Protection Class I).
  - ❖ All output wires must be rated for the power supply output current and must be connected with the correct polarity.
  - ❖ Sufficient cooling must be ensured.
- **Never work on the power supply if power is supplied!** Risk of electric arcs and electrical shock, which can cause death, severe personal injury or substantial property damage.
- **Warning:** Hazardous voltages and components storing a very substantial amount of energy are present in this power supply during normal operating conditions. However, these are inaccessible. Improper handling may result in an electric shock or serious burns! **Do not open the power supply until at least 5 minutes after it has been disconnected from the mains on all poles.**
  - ❖ Only trained personnel may open the power supply.
  - ❖ Do not introduce any objects into the power supply. The output voltage adjustment potentiometer may only be actuated using an insulated screwdriver.
  - ❖ Keep away from fire and water

## Installation Instructions:

- This power supply is designed for professional indoor systems. In operation the power supply must not be accessible. It may be installed and put into service by qualified personnel only.
- Do not operate without PE connection! To comply with EMC and safety standards (CE mark, approvals) the power supply must be operated only if PE terminal is connected to the non-fused earth conductor.
- The correct mounting position for optimal cooling performance must be observed. **Do not cover any ventilation holes.** Leave a free space of minimum 80mm (3.15in.) above and below the power supply and on each side of the power supply a minimum space of 25mm [0.98in] which allows air convection. Observe power derating.
- The internal fuse is not accessible, as it may not be replaced by the user. If this internal fuse has blown, the power supply has most properly an internal defect and, for safety reasons, must be shipped to the local distributor. In case this internal fuse has to be replaced in the field, replace only with same type and rating of fuse for continued protection against risk of fire.
- **Note:** This unit contains an automatic input voltage selection switch. Do not change the input voltage from 110/115Vac to 230/240Vac without disconnecting the input supply line first.
- **Recycling:** The unit contains elements that are suitable for recycling, and components that need special disposal. You are therefore requested to make sure that the power supply will be recycled environment friendly at the end of its service life.