Transduction

TR-PST SERIES POWER SUPPLIES

TR-PST Series Data Sheet

350W TO 1050W SINGLE OUTPUT POWER SUPPLIES

The TR-PST power supplies incorporate high performance midrange power, active Power Factor Correction (PFC), and high reliability to meet varied commercial and industrial requirements.

Providing tightly-regulated DC power, the TR-PST series is designed to provide full output power with only 300 Linear Feet per Minute (LFM) forced-air cooling (factory installed fan). Other features include remote sense, power fail, logic level inhibit, and DC power good. Current sharing is provided for redundant applications. The TR-PST power supplies are available in rack mount and desktop versions.

The TR-PST product line is approved to the latest international regulatory standards and displays the CE Mark.

TR-PST Features:

- Power Factor Correction (PFC) meets EN61000-3-2
- Fully-regulated outputs
- Main output remote sense
- Current Share, Power Fail, and Power Good signals
- Overtemperature, overvoltage, and overcurrent protected
- Input transient & ESD compliance to EN61000-4-2/-3/-4/-5
- Push-pull forced air cooling

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Single-Output Model Selection

Model	Output Voltage	Adjustment Range	Maximum Output Current (Note 1)	Line Regulation	Load Regulation	Ripple & Noise %p-p (Note 2)	Initial Setting Accuracy
TR-PST-12V-RM-350W TR-PST-12V-RM-700W TR-PST-12V-RM-1050W TR-PST-12V-PM-350W TR-PST-12V-PM-700W TR-PST-12V-PM-1050W	12V	10.8V to 13.5V	30A to 90A	0.2%	0.8%	1%	11.94V to 12.06V
TR-PST-24V-RM-350W TR-PST-24V-RM-700W TR-PST-24V-RM-1050W TR-PST-24V-PM-350W TR-PST-24V-PM-700W TR-PST-24V-PM-1050W	24V	21.6V to 26.4V	15A to 45A	0.5%	0.8%	1%	23.88V to 24.12V
TR-PST-28V-RM-350W TR-PST-28V-RM-700W TR-PST-28V-RM-1050W TR-PST-28V-PM-350W TR-PST-28V-PM-700W TR-PST-28V-PM-1050W	28V	25.2V to 30.8V	13.4A to 40.2A	0.5%	0.9%	0.9%	27.86V to 28.14V
TR-PST-48V-RM-350W TR-PST-48V-RM-700W TR-PST-48V-RM-1050W TR-PST-48V-PM-350W TR-PST-48V-PM-700W TR-PST-48V-PM-1050W	48V	46.0V to 56.0V	7.8A to 23.4A	0.5%	1.0%	1%	47.52V to 48.48V

NOTES: 1) Output currents ratings are expressed with air flow.
2) Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.

General Notes

- Output currents ratings are expressed with 300 LFM forced air.
- Peak loads up to 450 Watts for 60 seconds or less are acceptable. (10% duty cycle max.). Peak power must not exceed 450 Watts.
- Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.

Input Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Input Voltage-AC	Continuous input range.		85		264	VAC
Input Frequency	AC Input.		47		63	Hz
Brown Out Protection	Lowest AC input voltage that regulation is maintained with full rated loads.		85			VAC
Hold-Up Time	Over full AC input voltage range at full rated load.		20			ms
Input Current	85VAC at full rated load.				6	ARMS
Input Protection	Non-user serviceable internally located AC input line fuse, F10A, 250V.					
Inrush Surge Current	Internally limited by thermistor, one cycle, 25ºC.	110VAC 220VAC			35 65	APK
Power Factor	Per EN61000-3-2.		0.98			W/VA
Operating Frequency	Switching frequency of main transformer.			100		kHz

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Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full rated load, 110 VAC. Varies with distribution of loads among outputs.	68			%
Minimum Loads	Single output models. Multiple output models, 5V main output only. Multiple output models, 24V main output only.	0 3.5 1			Amps
Ripple and Noise	Full load, 20MHz bandwidth.		See Model Selection Charts		
Output Power	300 LFM forced air cooling required for operation. Peak power, all models.			450	Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.			0	V
Regulation	Varies by output. Total regulation includes: line changes from 85~132VAC or 170~264/VAC, changes in load starting at 20% load and changing to 100% load.		See Model Selection Charts		
Transient Response	Recovery time, to within 1% of initial set point due to a 50~100% load change, 3% max. deviation.		1		ms
Turn-On Delay	Time required for initial output voltage stabilization.			1	Sec
Turn-On Rise Time	Time required for output voltage to rise from 10% to 90%.		10		ms

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection		TR-PST-12V-RM-xxx	13.5		15.5	V
		TR-PST-12V-PM-xxx	13.5		15.5	
		TR-PST-24V-RM-xxx	27.0		30.7	
		TR-PST-24V-PM-xxx	27.0		30.7	
		TR-PST-28V-RM-xxx	30.8		35.0	
		TR-PST-28V-PM-xxx	30.8		35.0	
		TR-PST-48V-RM-xxx	60.0		70.0	
		TR-PST-48V-PM-xxx	60.0		70.0	
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.					
Overtemperature Protection	System shutdown due to excessive internal temperature, automatic reset.					
Remote Sense	Total voltage compensation for cable loses with respect to the main output.				250	mV
Current Share	Accuracy of shared current with up to 6 parallel units.				10	%
Inhibit	TTL compatible logic signal will inhibit outputs by the application of a logic low signal. An open circuit or external TTL high signal allows normal operation.					
Input Power Fail Warning	TTL compatible logic signal. Time before regulation dropout due to loss of input power at 110VAC.		5			ms
Power Good	TTL compatible signal. Signal is low if main output is greater or less than 10% of nominal.					
Fan Voltage	For internal push-pull air fans.			12		V

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL 1950. CSA 22.2 NO. 234/950. EN60950 (TUV).			Approved		
Dielectric Withstand Voltage	Input to output.		2600			VDC
Electromagnetic Interference	FCC CFR title 47 Part 15 Sub-Part B – Conducted. EN55022 / CISPR 22 Conducted.		B B			Class
ESD Susceptibility	Per EN61000-4-2, level 4.		8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.		10			V/M
EFT/Burst	Per EN61000-4-4, level 4.		±4			kV
Input Transient Protection	Per EN61000-4-5 class 3.	Line to Line Line to Ground	1 2			kV
Insulation Resistance	Input to output.			10		MΩ
Leakage Current	Per EN60950, 264VAC.				2.0	mA

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Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating.				10k	ASL Ft.
	Non-Operating.				40k	ASL Ft.
Operating Temperature		At 100% load	0		50	ºC
	Derate linearly above 50ºC by 2.5% per ºC.	At 50% load	0		70	ºC
Storage Temperature			-55		85	ºC
Forced Air Cooling	Forced air cooling of 300 LFM is required if the internal fan option is not specified. Cooling air velocity is measured ¼" above, at the middle of the chassis. Airflow direction is from the input section to the output section.					
Temperature Coefficient	0ºC to 70ºC (after 15-minute warmup).			±0.02	±0.05	%/ºC
Relative Humidity	Non-Condensing.		5		95	%RH
Shock	Operating: 10±3mS, 3 axis, Halfsine.				20	G
	Non-operating: 10±3mS, 3 axis, Halfsine.				40	
Vibration	Operating: 5~32Hz				0.02	in (DA)
	32~2000Hz Sinusoidal				1	GRMS
	Non-operating:				6.15	GRMS

TR-PST Ordering Information	Output Voltage
TR-PST-12V-RM-350W TR-PST-12V-RM-700W TR-PST-12V-RM-1050W TR-PST-12V-PM-350W TR-PST-12V-PM-700W TR-PST-12V-PM-1050W	12V
TR-PST-24V-RM-350W TR-PST-24V-RM-700W TR-PST-24V-RM-1050W TR-PST-24V-PM-350W TR-PST-24V-PM-700W TR-PST-24V-PM-1050W	24V
TR-PST-28V-RM-350W TR-PST-28V-RM-700W TR-PST-28V-RM-1050W TR-PST-28V-PM-350W TR-PST-28V-PM-700W TR-PST-28V-PM-1050W	28V
TR-PST-48V-RM-350W TR-PST-48V-RM-700W TR-PST-48V-RM-1050W TR-PST-48V-PM-350W TR-PST-48V-PM-700W TR-PST-48V-PM-1050W	48V

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