TSX Series - Description and Specifications

TSX Series - 350W/360W Single Output

- High power 35V/10A & 18V/20A
- Compact & lightweight high power units
- 35V-10A and 18V-20A models (single output)
- Bench or rack mounting, front & rear terminals
- Very low noise, excellent transient response
- Comprehensive protection including OVP trip
- High setting resolution, remote sense terminals

Model Range: TSX1820 - 18V/20A, TSX3510 - 35V/10A

OVERVIEW

The Thurlby-Thandar TSX series represents the state of the art in high output PSU design.
A wide range of voltage-current output combinations will become available with power levels of 360 Watts and more.
Each output combination is available in two versions: with conventional analogue controls **(TSX)** and with programmable controls **(TSX-P)**.

The standard versions

The standard TSX versions of the series incorporate conventional analogue controls for precision with simplicity.
Large diameter knobs and large paddle switches combine with the big bright displays to provide simple and unambiguous control.
Coarse and fine voltage controls offer fast setting with high setting resolution at all levels while a semi-logarithmic current control provides resolution commensurate with the current level.
These PSUs are ideally suited to general purpose applications in many technology areas.

Linear post regulation for unrivalled performance

The heart of all TSX series PSUs is an innovative regulator design which combines switch mode pre-regulation with linear post-regulation.
The pre-regulator uses specially developed techniques to dramatically reduce the capacitance

Compact and lightweight

The hybrid regulator design provides a PSU which is both smaller and lighter than competitive products.
The high thermal efficiency also means that the PSUs are silent in operation since fan cooling is unnecessary.

Bench or rack mounting

The attractively styled casing takes up very little bench space and incorporates a tilt bail to angle the front panel when required.
The case is half rack width (3U height), an optional rack-mount kit is available.
Output terminals are fitted at both front and rear.
* Note that in rack environments with limited ventilation fan cooling may become necessary.

Constant voltage or constant current operation

All TSX series PSUs can operate in both constant voltage and constant current modes with automatic crossover and automatic mode indication.

High accuracy metering

All versions incorporate high resolution digital meters for both voltage and current.
V and I levels can be set to high accuracy prior to connection to the load and the limit settings can be checked at any time.
A damping switch for the current meter enables the average value of rapidly changing currents to be read.

between input and output thus eliminating the high levels of common-mode noise normally associated with switch mode PSUs.
The linear post-regulator combines very low levels of output noise with excellent load regulation and transient response. The result is performance comparable with a pure linear design.

Full overvoltage protection

All versions incorporate a fully variable OVP trip to protect against regulator failure.
The output is fully protected and other protection functions include regulator overtemperature, and sense miswiring.

SPECIFICATIONS

Output Specifications:

Operating modes:	Constant voltage or constant current with automatic crossover.
Voltage range:	0V to 35V (TSX3510).
	0V to 18V (TSX1820).
Current range:	0A to 10A (TSX3510).
	0A to 20A (TSX1820).
Overvoltage protection:	10% to 110% of max. output voltage.
Setting resolution:	10mV, 10mA.
Load regulation:	<0.01% of max. O/P for 90% change.
Line regulation:	<0.01% of max. O/P for 10% change.
Output impedance:	<1mW in constant voltage mode.
	>5kW in constant current mode.
Ripple & noise:	<1mV RMS typical in constant voltage.
	<3mA RMS typical in constant current.
HF common mode noise:	Typically <3mV RMS, <10mV pk.
Transient load response:	<20us to within 50mV of set level for 90% load change.
Temperature coefficient:	typically <100ppm/^{o}C.
Overvoltage protection delay:	<200us.
Protection functions:	Overvoltage trip, Regulator over temperature, Sense miswiring.
Status indication:	Output on/off lamp, Constant voltage mode lamp, Constant current mode lamp, Trip message.
Output switch:	Electronic.
Output terminals:	4mm output terminals at front, screw terminals for output and sense at rear.
Output protection:	Full forward and reverse protection via OVP and diode clamp.

Input Specifications:

Input voltage range:	180V to 270V RMS, 90V to 135V RMS, 47 to 63Hz.
Power requirement:	750VA max.

Voltage range selection:	Rear panel slide switch.

Meter Specifications

Meter types:	Separate 4 digit meters for voltage and current with 12.5mm (0.5") LED displays.
Meter resolutions:	10mV, 10mA.
Meter accuracies:	Voltage ±(0.2% + 1 digit)
	Current ±(0.5% + 1 digit).

Mechanical & Environmental

Electrical safety:	Complies with EN61010-1.
EMC:	Complies with EN50081-1 and EN50082-1.
Temperature:	+5oC to +40oC operating, 20% to 80% RH, -40oC to +70oC storage.
Size:	210 x 130 x 350mm (WxHxD)
	(half rack width x 3U height), optional rack mounting kit available.
Weight:	5.0kg (TSX versions).
	5.5kg (TSX-P versions).

Front Panel Controls

Voltage setting:	Via single rotary controls for coarse and fine control.
Current setting:	Via single turn semi-logarithmic rotary control.
Overvoltage setting:	Via screwdriver adjustable preset potentiometer.
Output On/Off:	Via large paddle lever switch.