

TECTROL 1500 WATT 1.5U RECTIFIER MODULE



The TCR-1500-48 provides 1500 Watts of highly reliable DC power in a low profile 1.5U rectifier module designed for use in demanding telecommunication applications.

The TCR is available in industry standard voltages and can be modified or configured to supply different power output levels as required.

A compact form factor allows integration of up to 4 parallel or redundant TCR modules in TECTROL'S TCP3R configurable 3U Power System (or any standard 84 HP width 19" 3U shelf).

Hot swap capability is implemented through the use of an industry standard connector that combines both AC power and DC output connections in a single "blind mate" configuration.

The TCP3R shelf allows optional configurable alarms, battery management and Low Voltage Display features to enable the TCR-1500 to be easily customized for customer-specific applications.

FEATURES

- 1500 Watt output power
- Wide range (universal) input
- Low 1.5U profile provides high power density
- Full hot swap capability
- Non-redundant parallel operation or N+1 configuration
- High Efficiency
- Single wire active current share
- Integral Isolation (ORing) Diodes
- Constant Voltage, Current & Power characteristics
- Programmable Output Voltage adjustment
- Configurable Power Shelf option
- Strenuously HALT tested to ensure maximum reliability and long life

AGENCY COMPLIANCE

- UL/cUL Approval
- TUV Approval
- CE Mark (to the LVD requirements of EN 60950)
- Harmonic Compliance to EN 61000-3-2 (Class A & D Limits)
- NEBS Compliant*
- ETSI Compliant

* In NEBS compliant cabinet

EMISSIONS AND IMMUNITIES

- EN 55022 Class B Emissions
- EN 61000-3-2 Class D Harmonic Compliance
- EN 61000-4 Compliance

MAX OUTPUT POWER	OUTPUT (Volts)	OUTPUT	AC INPUT (Volts)	MODEL NUMBER
1500W 1200W	40 to 56V _{DC} (54.5 nom)	34A @ 40V _{DC} 30A @ 40V _{DC}	180 to 264V _{AC} 100 to 180V _{AC}	TCP1U5-1500-48
1500W 1200W	20 to 28VDC (27.25 nom)	68A @ 40V _{DC} 60A @ 40V _{DC}	180 to 264V _{AC} 100 to 180V _{AC}	TCP1U5-1500-24

TECHNICAL SPECIFICATION

INPUT SPECIFICATION

Full Range Input	100 to 264 Vrms, 50/60 Hz
AC Line Input	17 A @ 110 V & 8 A @ 230 V input voltage
Line Inrush Current	15 A _{PK} @ 230 VAC 50 Hz; half cycle, cold start (25° C)
Power Factor	> 0.95 (typically 0.97)
Harmonic Compliance	Complies with EN 61000-3-2 Class A Limits
Leakage Current	1.1 mArms per module
Voltage Dip/Interruptions	Complies with IEC/EN 61000-4-11
Transients & Surges	Complies with IEC/EN 61000-4-5
Efficiency	> 90% for 48 V; 89% for 24V at 230V full load (including isolation device)

OUTPUT SPECIFICATION

Factory Set Output Voltage	54.5 V; 24.25V(floating/isolated wrt com/gnd)
Static Voltage Regulation	± 0.5% (line, load regulation, temperature)
Voltage Adjustment	40 to 56 V; 20 to 28 V
Ripple & Noise (PARD)	480 mV pp; 240mVpp (-5° C to 65° C)
Output Current	54.5 V nom @ 27.5 A; 27.25 V @ 55 A
Module Power (Max)	1500 W continuous operation @ 65° C
Constant Power Feature	1500 W across output voltage range
Current Share	Single wire active current share
Parallel Operation	Parallel non-redundant or N+1
Hot Swap Capability	Fully hot swappable, blind mate connector
Remote Sense Compensation	For ORing diodes and connector drop
Transient Response	5% deviation from nominal factory set voltage, for 10% to 100% or 100% to 10% step load change. Recovery to within 1% within 1 ms.

PROTECTION

Overload Protection	Unit protected against a permanent short circuit; constant current characteristic.
Over Voltage Protection	< 60 V max guaranteed shutdown (48 V) < 30 V max guaranteed shutdown (24 V) Reset by recycling of the incoming AC supply.
Over Temperature Protection	Shutdown in the event of operation in excessive ambient temperature or blocked/failed airflow (self recovery following temperature reduction).
Signals	I/O Signals: AC Fail, DC OK; Over Temp; Rectifier Fail Alarm; P/S Present; Remote On; Remote Adjust (V _{PGM}).
LED Indicators	AC Fail, DC OK.

MECHANICAL FORMAT

Input/Output Connector	Positronic PCIH47M400A1 connector: AC input and DC Output in to a single connector for true hot swap capability (mating connector type PCIH47F300A1).
Mechanical Outline	2.5" (H) x 5.20" (W) x 11.75" (L) 63.5 x 132.1 x 298.5 (mm)

ENVIRONMENTAL

Temperature Range	Operational: -40° to 65° C (max start up load @ -35° C; 1000 W @ -40° C).
Cooling / Air Flow	Integral high performance 60 mm x 60 mm fan. Airflow direction; inlet at fan face; exhaust at connector face.
Acoustic Noise	< 60 dBA measured at 1 meter from air inlet face.

PIN ASSIGNMENT	FUNCTION
1 - 4	-54V
5 - 12	+24V
13 - 20	RETURN
21	REMOTE RETURN
22	+SENSE
23	V _{pgm}
24	-SENSE
25	N/C
26	I-SHARE
27	REMOTE ENABLE
28	N/C
29	N/C
30	DC-OK
31	RFA
32	-12V
33	LOGIC RETURN
34	N/C
35	+12V
36	AC_FAIL
37	N/C
38	PS PRESENT
39	N/C
40	N/C
41	N/C
42	N/C
43	N/C
44	N/C
45	CHASSIS
46	NEUTRAL

