

2000W Front-End Power Supply

TECTROL 2000 WATT 48 VOLT 1U FRONT-END POWER SUPPLY



The TCP1U-2000 provides up to 2000 Watts of highly reliable DC power, in a low profile 1U compatible module designed for high power density architecture applications utilizing distributed power.

The TCP1U is available in an industry standard 48 volt model and can be modified or configured to supply different power output levels as required.

An extremely compact form factor allows integration of up to 4 parallel or N+1 redundant TCP1U modules in the TECTROL TCP1R configurable 1U Power System (or any standard 84 HP width 19" 1U rack)⁽¹⁾

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.

An industry standard I²C communication bus provides inventory management and key parameter monitoring and alarm functionality⁽¹⁾

⁽¹⁾ Available early 2006

FEATURES

- 2000 Watt output power
- Wide range (universal) input
- Low 1U 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
- Enhanced I²C monitoring functionality⁽¹⁾
- Strenuously HALT tested to ensure maximum reliability and long life
- RoHS Compliant⁽¹⁾

⁽¹⁾ Available early 2006

AGENCY COMPLIANCE

- UL/cUL Approval, Pending
- TUV Approval, Pending
- CE Mark (to the LVD requirements of EN 60950)
- Harmonic Compliance to EN 61000-3-2 (Class A Limits)

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 (Amps)		AC INPUT (Volts)	MODEL NUMBER
	V _{MAIN}	V _{STANDBY}	V _{MAIN}	V _{STANDBY}		
2000W	48	5V	42A	2A	180 to 264V _{AC}	TCP1U-2000-48
1500W	48	5V	32A	2A	90 to 264V _{AC}	TCP1U-2000-48

TECHNICAL SPECIFICATION

INPUT SPECIFICATION

Full Range Input	90 to 264 Vrms, 50/60 Hz
AC Line Input	13A @ 115V & 16.3A @ 230 V input
Line Inrush Current	15A _P @ 115 VAC 60 Hz; 30 A @ 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	85% full load, 115V _{AC} nominal line 90% full load, 230V _{AC} nominal line (including OR _{ING} diodes)

OUTPUT SPECIFICATION

Factory Set Output Voltage	48V±0.05V (floating/isolated wrt com/gnd) 5V±0.05V (floating/isolated wrt com/gnd)
Static Voltage Regulation	48V± 1% (line, load, temperature) 5V± 3% (line, load, temperature)
Voltage Margining	± 5% from nominal set voltage
Ripple & Noise (PARD)	480mVpp for 48 V 100mVpp for 5V _{STANDBY}
Output Current	48 V nom @ 42A; 5V _{STANDBY} @ 2A
Maximum Module Power	2000 W continuous operation @ +55° C
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	2% deviation from nominal set voltage, for 25% step load change. Recovery to within 1% within 500µs.

PROTECTION

Overload Protection	Inception point 120%. Unit protected against a permanent short circuit.
Over Voltage Protection	120% inception point shutdown. Reset by recycling of the incoming AC supply.
Over Temperature Protection	Shut down in the event of operation in excessive ambient temperature or blocked/failed airflow (self recovery following temperature reduction).
Signals	I/O Signals: <ul style="list-style-type: none"> ○ AC OK; active low open collector ○ DC OK; active low open collector ○ P/S Present; ○ Remote On; ○ EEPROM SCL/SDL & Address Lines⁽¹⁾; ○ Enhanced I²C option; provides monitor function of V, A, internal temperature, fan speed⁽¹⁾ <small>⁽¹⁾ Available early 2006</small>

LED Indicators

- LEDS**
- AC OK –Green “on” for AC OK condition
 - DC OK– Green “on” for DC OK “normal” operation

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	1.67" (H) x 4.00" (W) x 14.5" (L) 40.39 mm x 132.1 mm x 297.94 mm

ENVIRONMENTAL

Temperature Range	Operational: 0° to 55° C, FL no derating
Cooling / Air Flow	Integral dual high performance 40 mm fans. Airflow direction; inlet at fan face; exhaust at connector face.

Pin	Function
1-4	Reserved
5-8	Reserved
9-12	Earth/Ground
13-16	48V Output (+VE)
17-20	48V Output (-VE)
21	Remote On (Return)
22	(+VE) Sense
23	Reserved
24	(-VE) Sense
25	Reserved
26	I-Share
27	Remote On
28	Reserved
29	Reserved
30	DCOK
31	Reserved
32	+5V _{STANDBY}
33	ACOK/DCOK (Return)
34	Reserved
35	+5V _{STANDBY} (RTN)
36	ACOK
37	Reserved
38	P/S Present
39	Reserved
40	Reserved
41	Reserved
42	AC Range Signal
43	Reserved
44	Reserved
45	Earth/Ground
46	Neutral
47	Line

