

# TCP3U-3000

## 3000 Watt Front-End Power Supply

### TECTROL 3000 WATT 48 VOLT 3U FRONT-END POWER SUPPLY



The TCP3U-3000 provides up to 3000 Watts of highly reliable DC power in a compact 3U module that is designed to deliver reliable bulk power to distributed power architecture applications that require high power density.

The TCP3U is available in industry standard 48 volt models and can be modified or configured to supply different power output levels as required.

A compact form factor allows installation of up to 3 parallel or redundant TCP3U modules in a standard 84 HP width 19" 3U rack.

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.

Optional digital interfaces such as I<sup>2</sup>C can be configured on the TCP3U to meet application-specific needs.

#### FEATURES

- True 3000 Watt output power (no derating)
- High line input
- Low 3U 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
- I<sup>2</sup>C EEPROM Bus Chip 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)

#### 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
3000 W	48	63	180 to 264	TCP3U-3000-48
2000 W	48	42	180 to 264	TCP3U-2000-48

**TECHNICAL SPECIFICATION**

**INPUT SPECIFICATION**

**High Line Input** 180 to 264 Vrms, 50/60 Hz  
**AC Line Input** < 13 A / 19 Arms max @ 180 VAC input  
**Line Inrush Current** < 30 Apk hot or cold start, 180 to 264 VAC  
**Power Factor** > 0.97 (typically 0.99)  
**Harmonic Compliance** Complies with EN 61000-3-2 Class A Limits  
**Leakage Current** < 3.5 mArms per module  
**Voltage Dip/Interruptions** Complies with IEC/EN 61000-4-11  
**Transients & Surges** Complies with IEC/EN 61000-4 Parts 4 & 5  
**Efficiency** > 89% full load, nominal line (including ORing diodes)

**OUTPUT SPECIFICATION**

**Factory Set Output Voltage** 48 ± 0.15 V @ 50% FL  
**Static Voltage Regulation** ± 6% (line, load regulation, temperature)  
**Ripple & Noise (PARD)** 500 mV pp  
**Output Current** 48 V nom @ 42 A / 63 A  
**Module Power** 2000 W / 3000 W continuous @ 50° C  
**Current Share** Single wire 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 set voltage, for 50% - 100% or 100% to 50% step load change. Recovery to within 1% within 100 mS.

**PROTECTION**

**Overload Protection** Inception point 110% nominal. Unit protected against a permanent short circuit current foldback.  
**Over Voltage Protection** 60 V max guaranteed shutdown. Reset – recycling of the incoming AC supply.  
**OTP** Shut down 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 Fail, Over Temp.  
**LED Indicators** AC OK, DC OK.

**MECHANICAL FORMAT**

**Input/Output Connector** Elcon "lower drawer" type connector AC input and DC Output in to a single connector for true hot swap capability.  
**Mechanical Outline** 5.0" (H) x 5.0" (W) x 11.5" (L)  
 127 mm (H) x 127 mm (W) x 292 mm (L)

**ENVIRONMENTAL**

**Temperature Range** Operational: 0° to 50° C, FL no derating  
**Cooling / Air Flow** Integral high performance fans. Airflow direction, inlet at fan face and exhaust at connector face.

TABLE 1  
ELCON LOWER DRAWER CONNECTOR

PIN	SIGNAL
1	INPUT AC, NEUTRAL
2	INPUT AC, LINE
3	CHASSIS GROUND
4	CHASSIS GROUND
6	UNIT PRESENT
6	NO CONNECTION
7	UNIT PRESENT
8	NO CONNECTION
8	NO CONNECTION
9	NO CONNECTION
10	NO CONNECTION
11	NO CONNECTION
12	NO CONNECTION
13	NO CONNECTION
14	NO CONNECTION
15	NO CONNECTION
16	AC FAIL
17	NO CONNECTION
18	NO CONNECTION
18	LOGIC RETURN
20	NO CONNECTION
21	DC FAIL
22	NO CONNECTION
23	REMOTE SENSE +
24	NO CONNECTION
25	REMOTE SENSE -
26	OUTPUT +
27	OUTPUT -
28	OUTPUT +
29	OUTPUT -

