

PowerCassette®: 1U HIGH RACK-MOUNT DC/DC CONVERTERS 24VDC to 48VDC or 54.4VDC at 1000 and 1200 Watts with Hot Swap

FEATURES

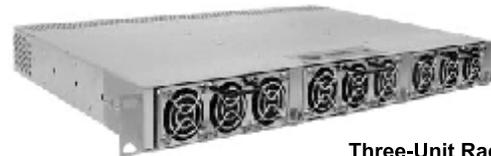
- Isolated 5V, ¼ A Standby Output
- Hot-Swap Operation
- 48 or 54.4 VDC Output
- Remote Output Adjustment
- Up to 3600 Watts System Output
- Wide Range 20 to 30VDC Input
- Integral LED Status Indicators
- -20°C to +70°C Operating
- I²C Serial Data Bus Option
- 12.5 Watts/Cubic Inch Power Density
- Low Profile IU: 1.6 Inches High
- Single Hot-Swappable Connector
- Staged Pin Engagement
- ORing Diode on Output
- 1U, 19" Rack/Shelf Holds 3 Units
- 19- or 23-Inch Rack Mounting
- Active Current Sharing
- Optimized Thermal Management
- No Minimum Load
- Control & Monitoring Features



1U High

TPCMQ24 Series

1.6" x 5" x 10"
(41 x 127 x 254 mm)



Three-Unit Rack/Shelf
TPCMQR1U3-24



2006/95/EC

TWO-YEAR WARRANTY

Patent Protected

STANDARD MODULES

MAX. OUTPUT POWER	MAX. OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT VOLTAGE	MODEL
1200W	48VDC	25.0A	20-30VDC	TPCPQ24-48/25
1000W 1000W	54.4VDC 48VDC	18.4A 20.8A	20-30VDC 20-30VDC	TPCMQ24-54/18 TPCMQ24-48/20

NOTE: The table does not show the independent 5V, ¼A standby output which is standard on all models.

SYSTEM RACK/SHELF (See page 3)

MODEL	WIDTH	HEIGHT	NO. OF MODULES
TPCMQR1U3-24	19" (483 mm)	1.72" (43.7 mm)	3

NOTE: System rack and hot-swap modules must be ordered separately.
Reversible bracket mounts in both 19 and 23" rack/shelf.

OPTIONS

CODE	DESCRIPTION
Z	I ² C Serial Data Bus

NOTE: Add Option Code as suffix no. on both module and rack/shelf. Contact factory on availability of Option Z.

SAFETY STANDARDS

UL60950-1
CSA22.2, No. 60950-1
EN60950-1

SPECIFICATIONS, TPCMQ24 SERIES DC/DC CONVERTERS

Typical at Nominal 24VDC Input, Full Load and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Total Output Power, Continuous, Max. See Model Table
 Voltage Adjustment Range, Min. -25% to +10%
 Total Regulation¹,2.0%
 Total Regulation, Standby Supply5.0%
 Ripple & Noise, Pk-Pk² 200mV
 Voice Band Noise <32dBnC
 Dynamic Response³300µS
 Temperature Coefficient±0.02%/°C
 Minimum Load0A
 Current Limit..... 105% Rated Current
 Overload Protection..... Auto Recovery
 Overvoltage Protection..... Latched Shutdown
 Remote Sense.....Up to 0.25V Per Wire
 Current Share..... ±10% Full Load Rating
 Standby Output..... +5V, 250mA
 Output Power Good Signal.....Logic Low
 Input Power Fail Signal..... Logic High
 Inhibit.....Logic Low
 EnableLogic Low
 Thermal WarningLogic High

INPUT SPECIFICATIONS

Input Voltage Range20-30VDC
 Inrush Current Limiting 100A Peak
 Input EMI Filter Standard
 Analog Voltage Adjust..... 0 to +5V
 Input Immunity, Conducted
 Fast Transients, Line-Line±500V (EN61000-4-4)
 Surges, Line-Line±500V (EN61000-4-5)
 Surges, Input Ground±500V (EN61000-4-5)
 Input Protection Internal Fuse, 100A

GENERAL SPECIFICATIONS

Efficiency⁴89% at Full Load
 Switching Frequency, 210kHz Nominal
 Isolation, Class I, min.⁵
 Input-Output 2121VDC
 Input-Ground 1000VDC
 Output-Ground 100VDC
 MTBF (Bellcore) 200,000 Hours
 Safety Standards..... EN60950-1, UL6950-1, CSA22.2 No.950-1

ENVIRONMENTAL SPECIFICATIONS

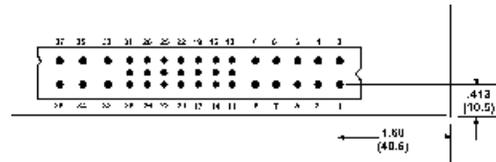
Operating Temperature.....-20°C to 70°C Ambient
 Derating..... 2.5% / °C, 50°C to 70°C
 Storage Temperature -40°C to +85°C
 Cooling Integral Ball Bearing Fans

PHYSICAL SPECIFICATIONS

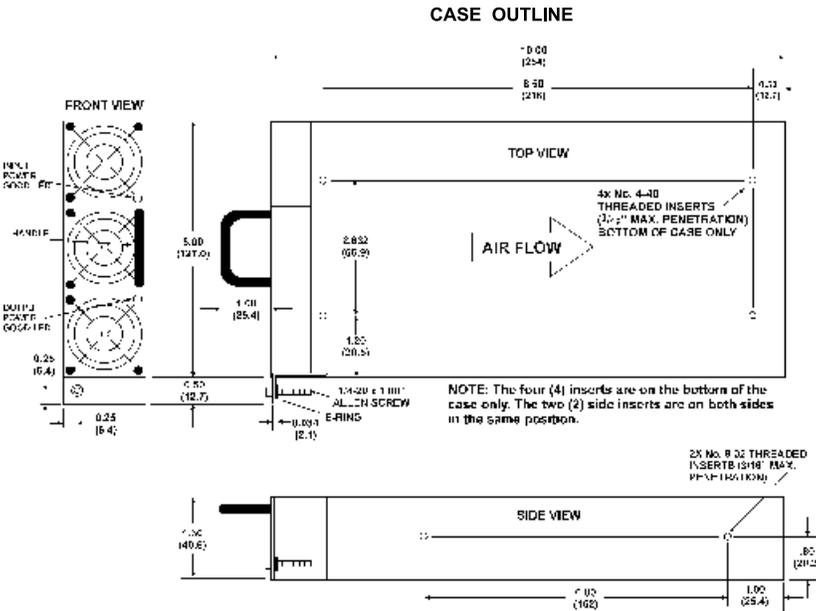
Case Material, Module & Rack/Shelf.....Aluminum
 Dimensions, Inches(mm), Module1.6 H x 5.0 W x 10.0 D
 (40.6 x 127 x 254)
 Rack/Shelf1.72 H x 19.00 W x 11.56 D
 (44 x 483 x 294)
 Weight, Module3.15 lbs. (1.43 kg.)
 Rack/Shelf4.15 lbs. (1.88 kg.)

- NOTES:**
1. No load to full load, including line regulation and load regulation.
 2. Whichever is greater, 20MHz bandwidth. Measure with 0.1µF ceramic and 10µF tantalum capacitors in parallel across the output.
 3. <4% deviation recovering to within 1% for 25% load change.
 4. Typical efficiency is at low end of range for 12V output and at high end of range for 24V output.
 5. Input-output isolation figure is for isolation components only. 100% production Hipot tested input to ground.

**CONNECTOR: POSITRONICS PCIM37W16RM400A1
 MATE: PCIM37W16RF400A1**



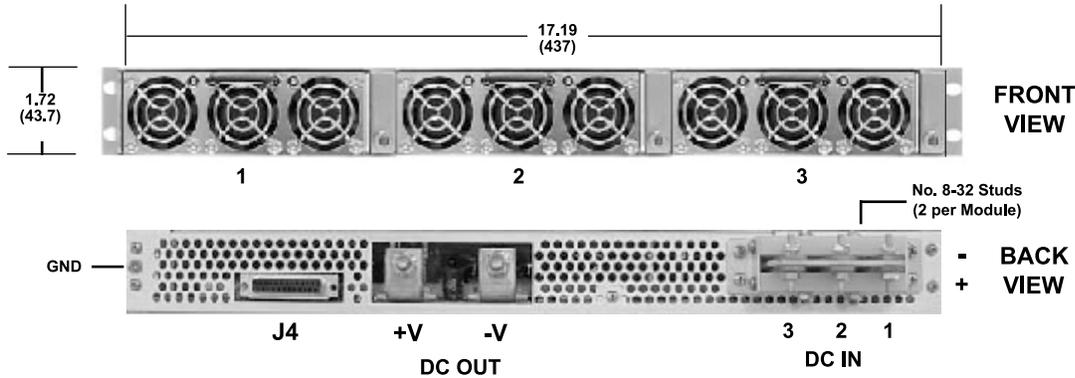
PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	-DC Input	20	Module Present
2	-DC Input	21	N.C.
3	-DC Input	22	Input Power Fail
4	-DC Input	23	N.C.
5	+DC Input	24	GA2
6	+DC Input	25	GA1
7	+DC Input	26	SCL
8	+DC Input	27	SDA
9	Chassis Ground	28	GAO
10	Chassis Ground	29	V. Adjust
11	N.C.	30	-Sense
12	Standby Return	31	+Sense
13	+5V Standby	32	-V Out
14	Output Power Good	33	-V Out
15	Overtemp. Warning	34	-V Out
16	Inhibit	35	+V Out
17	Enable	36	+V Out
18	Current Share	37	+V Out
19	Current Monitor		



NOTE: The four (4) inserts are on the bottom of the case only. The two (2) side inserts are on both sides in the same position.

ALL DIMENSIONS IN INCHES (mm).
 All specifications subject to change without notice.

SPECIFICATIONS, TPCMQR1U3-24 RACKS/SHELVES



J4 SIGNAL CONNECTOR



Standard 25-Pin
Subminiature D Connector

J4 PIN CONNECTIONS			
PIN	FUNCTION	PIN	FUNCTION
1	Inhibit	14	Input Power Fail - 1
2	Overtemp. Warning - 1*	15	Output Power Good - 1*
3	Current Monitor - 1*	16	Input Power Fail - 2
4	Overtemp. Warning - 2*	17	Output Power Good - 2*
5	Current Monitor - 2*	18	Input Power Fail - 3
6	Overtemp. Warning - 3*	19	Output Power Good - 3*
7	Current Monitor - 3*	20	Module Present - 1
8	+5V Standby	21	Module Present - 2
9	SDA	22	Module Present - 3
10	Current Share	23	- Sense
11	+Sense	24	Remote Adjust - 1
12	Remote Adjust - 2	25	Remote Adjust - 3
13	SCL		

NOTE: Standby return is connected to -Sense lead. Current rating of +5V standby is 250mA per installed module. All signals are referenced to -Sense lead. Pins 9 and 13 are I²C outputs when that option is present.

MAXIMUM RATED OUTPUT FOR 3 MODULES

MODULES	NON-REDUNDANT	2+1 REDUNDANT
TPCPQ24-48/25	48VDC@ 75.0A	48VDC@ 50.0A
TPCPQ24-54/18	54.4VDC@ 54.0A	54.4VDC@ 36.0A

RACK ACCESSORIES

Relay Alarm Adaptor:

Plugs into rear mounted signal connector and converts DC Good output for each module into Form-C relay contact output.	Pt. No. 009-1005-0000
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NOTES:

1. All connections are made to the rear of the rack/shelf. The modules are 1, 2, 3, from left to right as seen from the front of the rack/shelf.
2. All module outputs are connected in parallel in the rack/shelf with active current sharing between them.
3. There is a separate DC input for each module, but the inputs may be paralleled by means of two shorting bars. Order kit no. 775-1462-0000 for the two bars.
4. The Module Present outputs (J4 pins 20, 21 & 22) are grounded (to -Sense) when the module is plugged in and open when the module is out.
5. For details on the I²C function (option Z), contact the factory.

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